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File No. 039610-0001

March 17, 2008

VIA FEDEX

CALIFORNIA ENERGY COMMISSION
Attn: Docket No. 07-AFC-1
1516 Ninth Street, MS-4
Sacramento, California 95814-5512

Re: Victorville 2 Hybrid Power Project: Docket No. 07-AFC-1

Dear Sir/Madam:

Pursuant to California Code of Regulations, title 20, sections 1209, 1209.5, and 1210, enclosed herewith for filing please find a copy of a document entitled, "Application for Incidental Take of Endangered Species" for the above-referenced project.

Please note that the enclosed submittal was filed today via electronic mail to your attention and to all parties on the CEC's current electronic proof of service list.

Very truly yours,

Paul E. Kihm
Senior Paralegal

Enclosure

cc: CEC 07-AFC-1 Proof of Service List (w/encl. via e-mail)
Michael J. Carroll, Esq. (w/encl.)

VICTORVILLE 2 HYBRID POWER PROJECT

APPLICATION FOR INCIDENTAL TAKE OF ENDANGERED SPECIES

Per the California Endangered Species Act

**IN ACCORDANCE WITH CALIFORNIA CODE OF REGULATIONS,
TITLE 14, DIVISION 1, SUBDIVISION 3,
CHAPTER 6, ARTICLE 1, SECTION 783.2**

Prepared for:

**City of Victorville
San Bernardino County, California
Principal Officer: Jon B. Roberts, City Manager
(760) 955-5029**

Prepared by:

**AMEC Earth & Environmental
3120 Chicago Avenue, Suite 110
Riverside CA 92507
(951) 369-8060
www.amec.com**

11 March 2008

VICTORVILLE 2 HYBRID POWER PROJECT

APPLICATION FOR INCIDENTAL TAKE OF ENDANGERED SPECIES
Per the California Endangered Species Act

CALIFORNIA CODE OF REGULATIONS
TITLE 14. NATURAL RESOURCES, DIVISION 1. FISH AND GAME COMMISSION – DEPARTMENT OF FISH AND GAME

SUBDIVISION 3. GENERAL REGULATIONS

CHAPTER 6. REGULATIONS FOR IMPLEMENTATION OF THE CALIFORNIA ENDANGERED SPECIES ACT

ARTICLE 1. TAKE PROHIBITION; PERMITS FOR INCIDENTAL TAKE OF ENDANGERED SPECIES, THREATENED SPECIES AND CANDIDATE SPECIES

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§783.2. Incidental Take Permit Applications.

(a) Permit applications. Applications for permits under this article must be submitted to the Regional Manager.

The following application for incidental take of endangered species under the California Endangered Species Act (Appendix 1) is being submitted to:

Curt Taucher
Regional Manager, Inland Deserts Region

Los Alamitos Administrative Office
4665 Lampson Avenue, Suite J
Los Alamitos, CA 90720

And

John McCamman
Interim Director, California Department of Fish and Game

31416 Ninth Street
Sacramento, CA 95814

(1) Applicant's full name, mailing address, and telephone number(s). If the applicant is a corporation, firm, partnership, association, institution, or public or private agency, the name and address of the person responsible for the project or activity requiring the permit, the president or principal officer, and the registered agent for the service of process.

Applicant:	City of Victorville San Bernardino County, California
Name and Title of Principal Officer:	Jon B. Roberts, City Manager (760) 955-5029 (Telephone), (760) 269-0011 (Fax)
Mailing Address:	City of Victorville, 14390 Civic Drive, Victorville, CA 92392

(2) The common and scientific names of the species to be covered by the permit and the species' status under the California Endangered Species Act (CESA), including whether the species is the subject of rules and guidelines pursuant to Section 2112 and Section 2114 of the Fish and Game Code.

Species:	desert tortoise (*Gopherus agassizii*)
Status:	threatened
Species:	Mohave ground squirrel (*Spermophilus mohavensis*)
Status:	threatened

(3) A complete description of the project or activity for which the permit is sought.

The Victorville 2 Hybrid Power Project ("Project") involves the construction and operation of a hybrid electricity-generating power plant on largely undeveloped lands within the City of Victorville (Figure 1), next to the Southern California Logistics Airport (SCLA), formerly George Air Force Base (GAFB). This facility will consist of natural gas-fired, combined-cycle generating equipment integrated with a solar thermal generation component that utilizes arrays of parabolic solar energy collectors (Figure 2), which will be licensed by the California Energy Commission (CEC). Project work would occur slightly west of the Mojave River (Figure 3), with a transmission line extending southward to the existing Victor and Lugo electric transmission substations, as described in Appendix 2: "*Victorville 2 Hybrid Power Project Biological Assessment*" (AMEC 2007), Appendix 3: "*Victorville 2 Hybrid Power Project Biological Assessment Addendum*" (AMEC 2008) and Appendix 4: "*Victorville 2 Hybrid Power Project Biological Assessment Second Addendum*" (AMEC 2008).

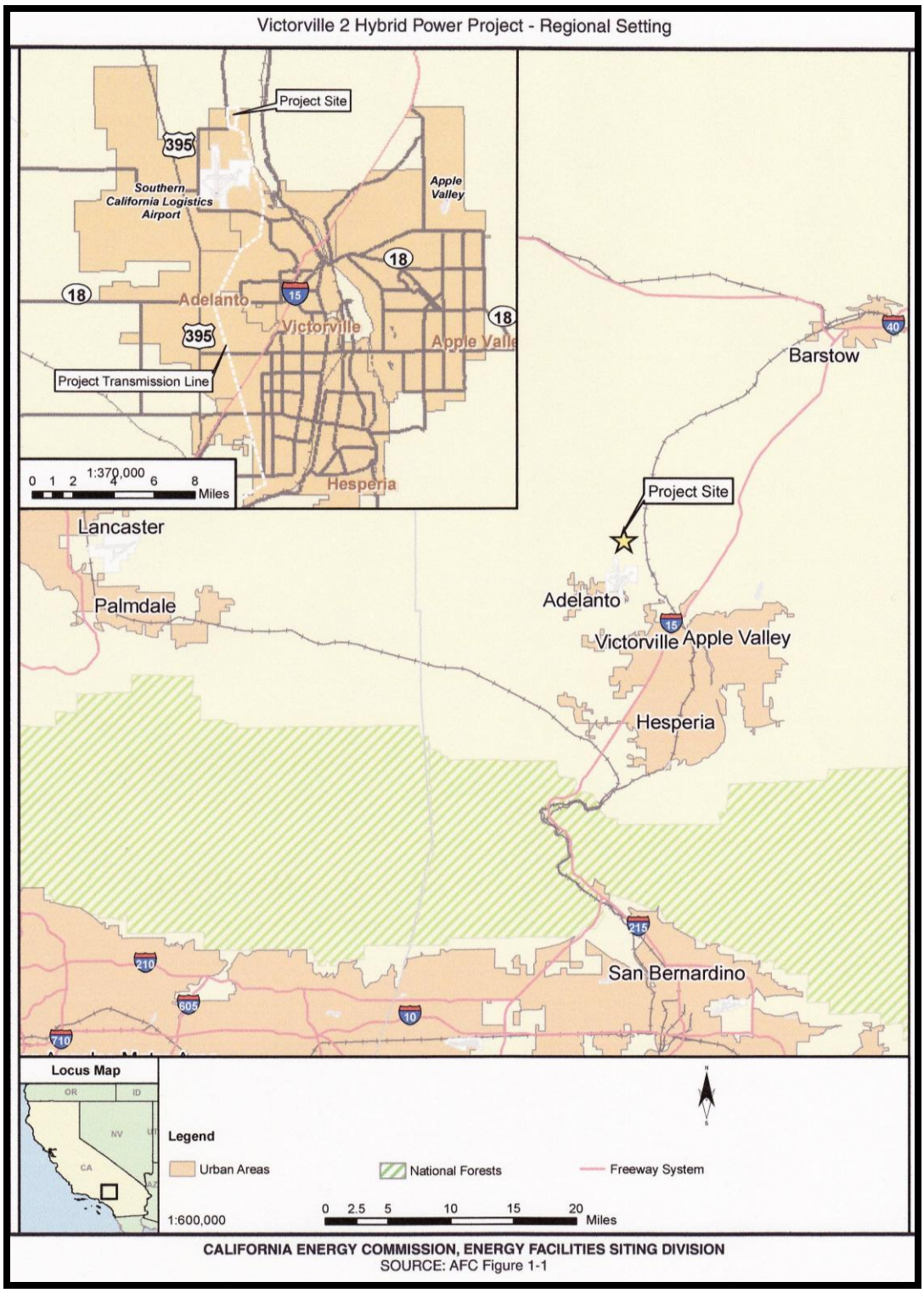

Figure 1. The Victorville 2 Hybrid Power Project would be located on largely undeveloped lands in northern Victorville, next to the Southern California Logistics Airport, formerly George Air Force Base.

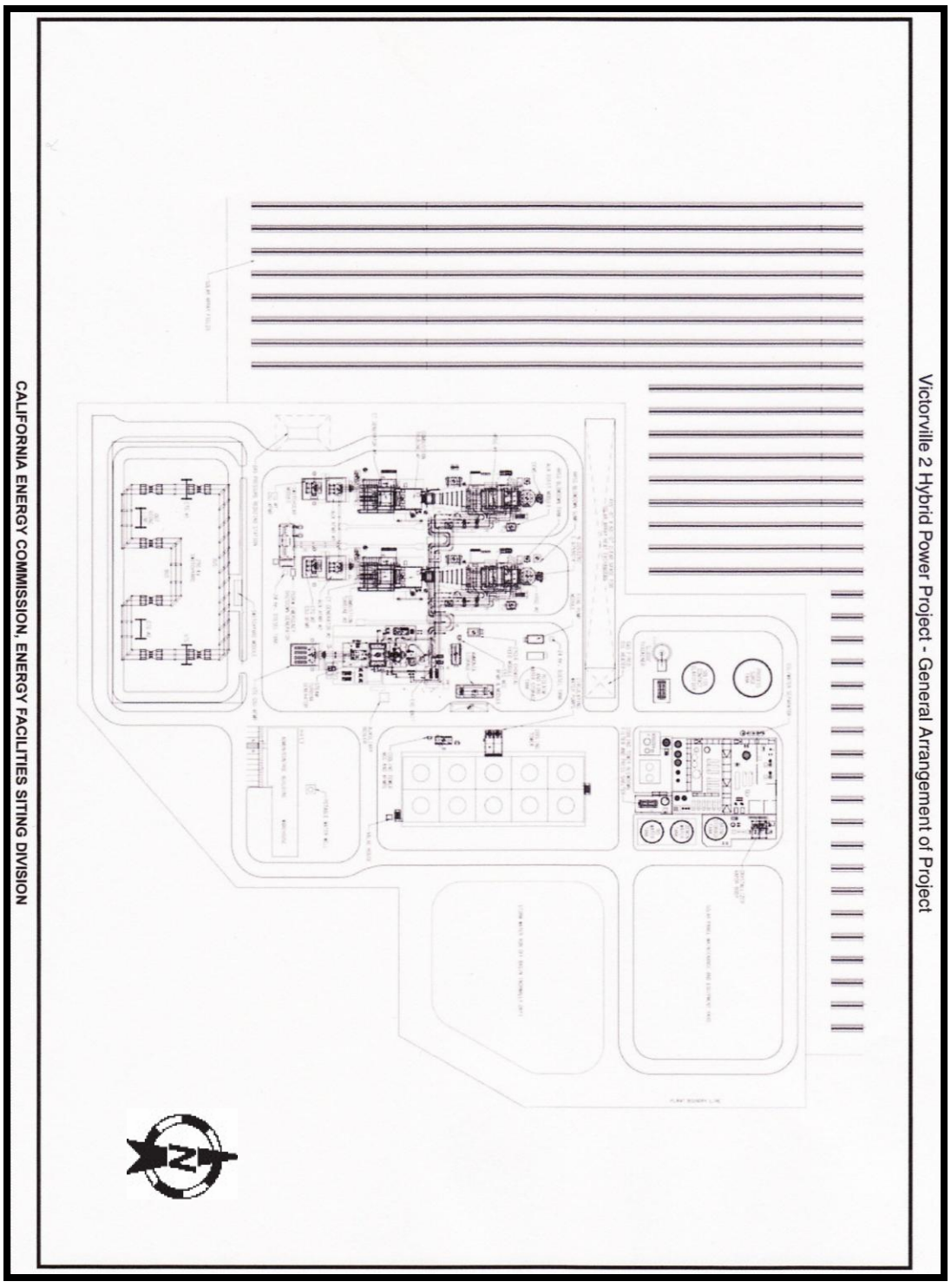

Figure 2. The Victorville 2 Hybrid Power Project would consist of natural gas-fired, combined-cycle generating equipment integrated with a solar thermal generation component that utilizes several parabolic solar energy collector arrays.

Figure 3. The Victorville 2 Hybrid Power Project area is situated west of the Mojave River, as depicted in this artist rendering of the proposed facility. An electric transmission line would extend southward from the facility to the existing Victor and Lugo electric transmission substations, within existing utility corridors.

As outlined in Appendices 2-4, as well as previously discussed with the CEC and California Department of Fish and Game (CDFG), the total combined Project (i.e., power plant, staging areas, and linear utilities) disturbance footprint would be 495 acres, with approximately 57 acres either currently developed (53.6 acres) or significantly disturbed and supporting extensive non-native grassland (3.0 acres).

Fifty acres of temporary-use lands (Table 1) would be required for construction staging adjacent to the proposed power plant. This includes one, 30-acre construction staging area located north of Colusa Road and west of Helendale Road, with a second 20-acre staging area located south of Colusa Road and east of Helendale Road. The permanent power plant disturbance footprint, inclusive of the solar parabolic array fields, would total 338 acres (Table 2).

A total of 438.5 acres of native plant communities considered suitable habitat for the state and federally listed threatened desert tortoise, as well as the state listed threatened Mohave ground squirrel (MGS), would be impacted by the Project (Table 3) in a predominantly private land area (Figure 4). These two species are collectively considered the "Covered Species" identified in this CESA Section 2081 application.

The new linear utility features of the Project would include installation of the following:

- One new 4.3 mile-length, 230 kV, above-ground electric transmission line which would connect to the existing High Desert Power Plant (HDPP) transmission path (referred to as Segment 1);
- One new 5.7 mile-length, 230 kV, above-ground electric transmission line in an existing utility right-of-way (ROW) corridor, involving the installation of new electric lines on existing transmission tower structures and installation of three new transmission towers (referred to as Segment 2);
- One new 11 mile-length, 230 kV, above-ground electric transmission line in an existing utility ROW and relocation of a 6.6 mile-length, 115 kV, above-ground electrical transmission line within the same existing utility ROW (referred to as Segment 3);
- One 1.5 mile-length reclaimed water supply pipeline, connecting the proposed power plant site to the Victorville Wastewater Reclamation Authority (VVWRA) facility;
- One 1.25 mile-length sanitary wastewater pipeline, connecting the proposed power plant site to an existing sewer main;
- One 450 foot-length 12-inch natural gas supply pipeline; and
- One 3 mile-length potable and emergency backup cooling/process water supply pipeline.

Table 1. Temporary impacts (in acres) per affected vegetation community and Project component.

Vegetation Community	Power Plant Site	West Staging Area	South Staging Area	Linear Utility Feature Segments			TOTAL
				1	2	3	
Creosote Bush & Saltbush Scrub	0	30.0	20.0	39.2	2.2	31.8	123.2
Pinyon-Juniper Woodland	0	0	0	0	0	23.2	23.2
Total	0	30.0	20.0	39.2	2.2	55.0	146.4

Table 2. Permanent impacts (in acres) per affected vegetation community and Project component.

Vegetation Community	Power Plant Site	West Staging Area	South Staging Area	Linear Utility Feature Segments			TOTAL
				1	2	3	
Creosote Bush & Saltbush Scrub	285.0	0	0	6.7	0.1	0.1	291.9
Pinyon-Juniper Woodland	0	0	0	0	0	0.2	0.2
Non-native Grassland	3.0	0	0	0	0	0	3.0
Disturbed & Developed Areas	50. 0	0	0	3.6	0	0	53.6
Total	338.0	0	0	10.3	0.1	0.3	348.7

Table 3. Temporary and permanent Covered Species impact (in acres) per plant communities considered suitable for habitation.

Vegetation Community	Power Plant Site	West Staging Area	South Staging Area	Linear Utility Feature Segments			TOTAL
				1	2	3	
Creosote Bush & Saltbush Scrub	285.0	30.0	20.0	45.9	2.3	31.9	415.1
Pinyon-Juniper Woodland	0	0	0	0	0	23.4	23.4
Total	285.0	30.0	20.0	45.9	2.3	55.3	438.5

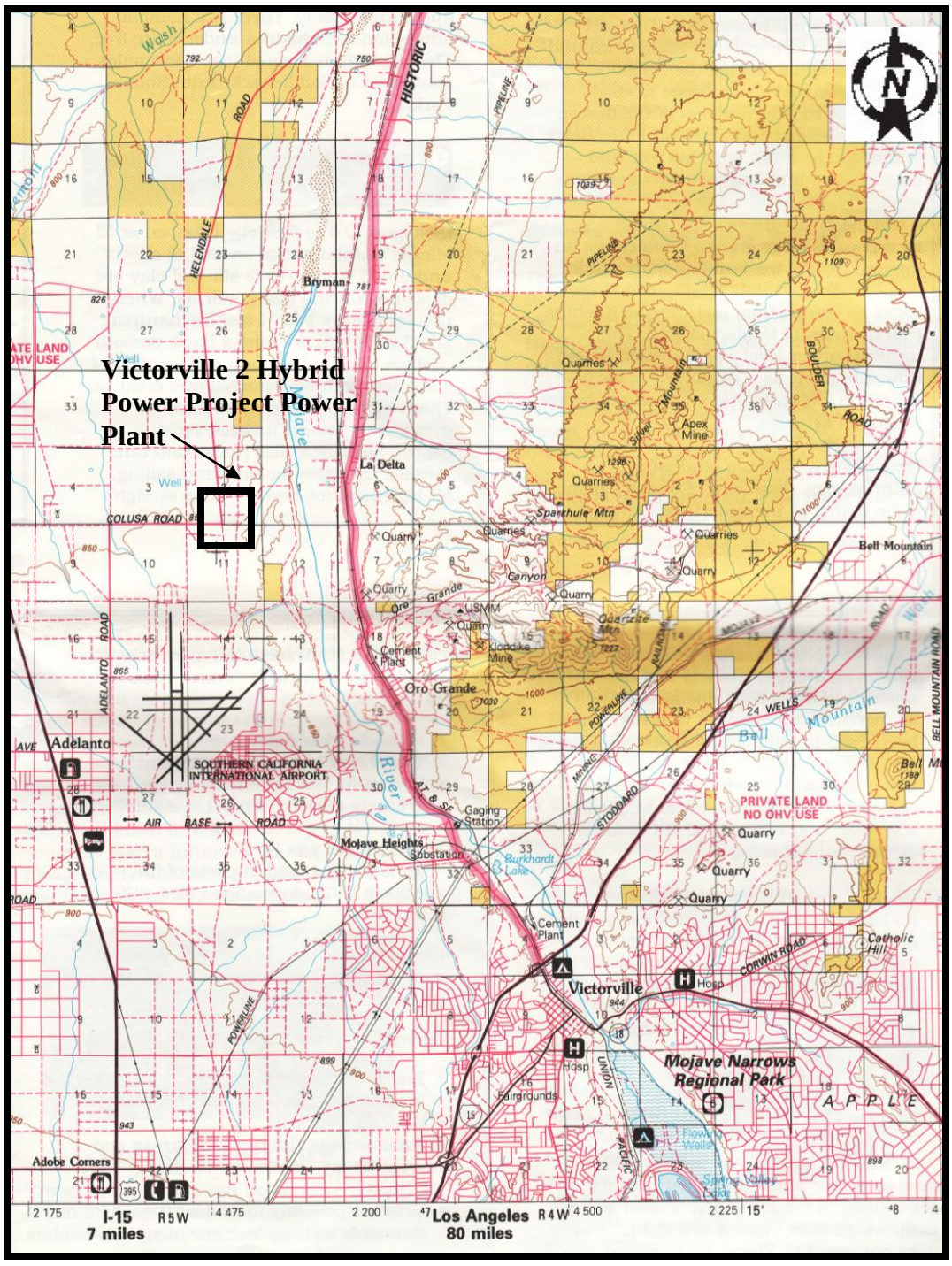

Figure 4. The Victorville 2 Hybrid Power Project power plant facility would be located on private lands (depicted in white) north of Colusa Road and west of Helendale Road. A 20-acre construction staging area would be located south of Colusa Road and east of Helendale Road. A 30-acre staging area would be located north of Colusa Road and west of Helendale Road. Few public lands (depicted in yellow) occur in the area (Victorville Desert Access Guide, BLM 1998).

Detailed maps of the linear utility features occurring in the VV2 Project's Segments 1 to 3 are depicted as Exhibit A of the Biological Assessment Second Addendum (Appendix 4). However, the exact location of the 139 single transmission pole sites associated with relocation of the 115 kV electrical transmission line in the northern portion of Segment 3 have not yet been determined and are not depicted on this map. Installation of these poles will occur in the immediate vicinity of existing pole locations and no new access spur roads will be needed to access these relocation sites.

Each relocated pole will require 6.3 square feet of permanent surface disturbance and 6,000 square feet of temporary surface disturbance. The 0.2 acres of permanent surface disturbance and 19.15 acres of temporary surface disturbance associated with each pole to be relocated have already been incorporated into the plant community and covered species' impacted habitat acreage totals presented in Tables 1 to 3.

Summarily, one hundred-seven (107) acres of surface disturbance will be required for linear utility feature installation (Appendices 2-4). Of the total linear utility feature surface disturbance, 11 acres would be permanent. The 96 acres of temporary linear utility feature surface disturbance, as well as the 50 acres of temporary surface disturbance associated with the power plant construction staging areas, will be revegetated according to specifications outlined in a revegetation plan to be approved by CEC and CDFG.

The natural gas pipeline will interconnect with an existing pipeline along an existing roadway shoulder located adjacent to the proposed power plant site. Potable water and backup cooling/process water required by the Project will be provided via a new 3-mile pipeline, which will connect to the City of Victorville's water system at a point located south of the Project site. This potable water pipeline will be situated primarily along existing road shoulders, following the City of Victorville's planned route for the future extension of Perimeter Road.

The reclaimed water and sanitary wastewater pipelines would be installed together within a shared 50 foot-width ROW trench, located adjacent to the northernmost portion of the proposed electrical transmission line in Segment 1. The construction footprint within unshared ROW areas of the pipeline would be 25 feet-wide.

Both the loss of native plant communities resulting from facility construction and the loss of lands to be enclosed by permanent facility fencing are considered permanent impacts relative to Covered Species' habitat. The loss of native plant communities in areas to be revegetated and those lands that will be enclosed by temporary fencing are considered temporary impacts in the context of Covered Species' habitat.

Permits for the Project are anticipated to be issued by May, 2008. Construction activities in support of the Project are currently scheduled to commence July 1, 2008, with commercial operation currently scheduled to begin in the summer of 2010.

Heavy equipment anticipated for use in construction would include bulldozers, excavators, backhoes, cranes, scrapers, dump trucks, water trucks, and tractor trailers. Light duty personal vehicles would also be used in access road travel.

Primary vehicle access to the proposed power plant site would be via Adelanto, Colusa and Helendale Roads (Figure 5). Minimal grading and approximately three miles of road paving will be necessary to facilitate use of these roads for power plant site access. No surface disturbance of currently undisturbed areas will be necessary to complete road work associated with power plant site access.

Existing roads provide much of the vehicular access needs for the Project's linear utility features, with new vehicle access (i.e., transmission tower spur roads etc.) impact incorporated in the total acreage outlined in Tables 1 to 3. While existing roads which cross drainages will be used for vehicle access within transmission line corridors, no new surface disturbance has been proposed for any drainage or the immediate Mojave River area. Where necessary for vehicle access to linear utility features outside of drainages, access spur roads will be routed to avoid streambank impacts. In the case of a few pipeline locale instances, horizontal drilling will be utilized to avoid all drainage impacts (Appendix 4, Exhibit A).

As described in Appendices 3-4, 30 acres of temporary surface disturbance will be necessary for installation of the Project's potable water pipeline in linear utility segment 1 (Figure 5). Similar to all other utility features, existing roads provide access to a majority of the pipeline alignment. The affected plant community and covered species impact acreage has been incorporated into Tables 1 to 3.

The Project Revegetation Plan will be implemented in the last phase of construction activities and will be applied to all temporary impact areas of the Project. This plan will be submitted for involved agency approval prior to commencement of surface-disturbing activities and will entail native plant and cacti salvage, post-construction "vertical mulching" of salvaged shrubs, Joshua tree relocation, and hand-broadcast seeding of native plants. Salvaged plant material would either be stored onsite in temporary surface disturbance areas or cared for at an offsite nursery, until needed for revegetation purposes.

Other resource impact minimization and mitigation measures have been incorporated into the Project and/or prescribed as terms and conditions for the Project by the U.S. Fish and Wildlife Service (FWS) in its "*Biological Opinion for the Victorville 2 Hybrid Power Project, San Bernardino County, California*" (1-8-07-F-67) (2008) (Appendix 5). These measures include pre-construction biological clearance surveys, temporary and permanent tortoise exclusion fencing, tortoise translocation, offsite habitat impact compensation, environmental awareness training for all involved personnel, construction monitoring and regular compliance reporting to involved agencies (Appendices 2-5). The "*Victorville 2 Hybrid Power Project Desert Tortoise (Gopherus agassizii) Translocation Plan*" (Appendix 4) has also been previously submitted to the CEC, CDFG and FWS as Exhibit D in the Biological Assessment Second Addendum.

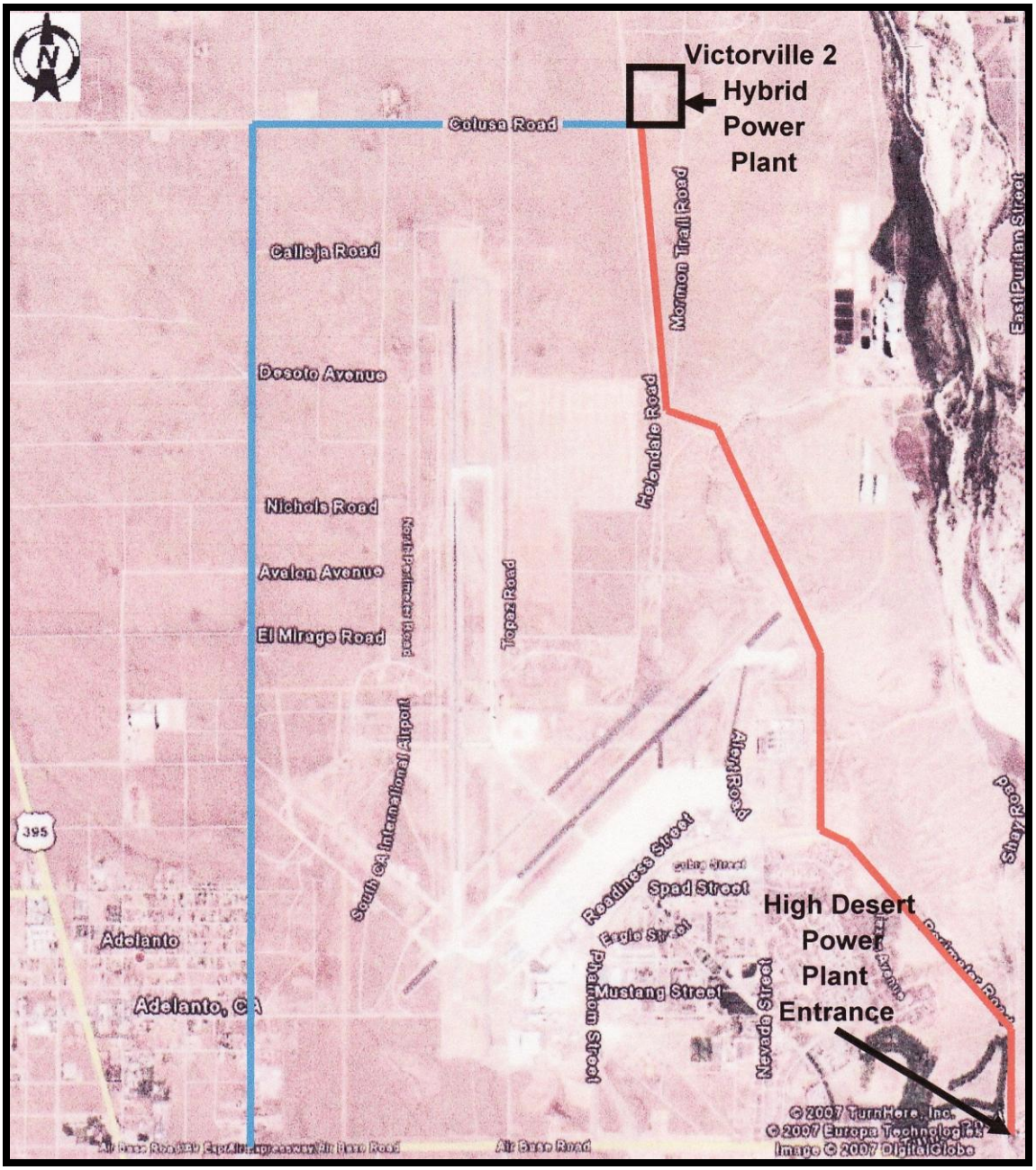

Figure 5. The Victorville 2 Hybrid Power Project vehicle access route would utilize Adelanto, Colusa and Helendale Roads, as depicted above by the blue line. A potable water pipeline, as depicted above by the red line, would be installed in an alignment following Perimeter Road to connect with the City of Victorville's water distribution system near the High Desert Power Plant entrance.

Agency Coordination to Date

An introductory meeting outlining the Project was held on June 20, 2006, with a representative of the FWS Ventura Field Office, the local CDFG representative and the assigned staff of the CEC attending. Participating agency representatives were informed that the Environmental Protection Agency (EPA) was anticipated to initiate Endangered Species Act (ESA) Section 7 consultation on the one federally listed species (desert tortoise) affected by the Project. It was also confirmed that incidental take permitting for the Project would be completed with the CDFG per the CESA, as the desert tortoise is also state listed as threatened.

Although CDFG-approved trapping for Mohave ground squirrel in the proposed power plant area has not confirmed that species' occurrence in the Project area to date, the City of Victorville as the Project Proponent elected to assume MGS presence in the Project area. Consequently, involved agencies were apprised that the Covered Species to be addressed in CESA Section 2081 permitting would be the desert tortoise and MGS.

On February 28, 2007, the City of Victorville as the Project Proponent submitted an Application for Certification (AFC) to the CEC for the Victorville 2 Hybrid Power Project. The AFC was deemed data adequate by the CEC on April 11, 2007. The AFC includes a comprehensive discussion of the Project and all potential environmental impacts that may result from the Project, including biology and water. The AFC describes in detail the California Natural Diversity Data Base (CNDDB) analysis conducted for the Project, the numerous sensitive species surveys undertaken, and a description of how all unavoidable biological impacts of the Project are minimized and/or mitigated.

On March 23, 2007, CDFG submitted a comment letter to the CEC requesting additional information regarding road access to the Project site. Those concerns are being addressed by the Project Proponent as part of the CEC process.
A meeting with the California Desert District Office of the U.S. Bureau of Land Management (BLM), CDFG and FWS to discuss potential desert tortoise translocation sites and procedures was held on March 28, 2007, at the Ventura FWS Field Office. It was confirmed at this meeting that ESA Section 7 consultation would be initiated between the EPA and the FWS, relative to the desert tortoise and EPA's issuance of a Prevention of Significant Deterioration (PSD) permit for the Project under the federal Clean Air Act.

It was also re-confirmed at the March 28, 2007 meeting that CESA incidental take permitting involving the Covered Species would be completed with the CDFG. Involved regulatory agency representatives agreed at this meeting that a single Biological Assessment addressing state/federally listed species, candidates for such listing, and species of special concern would be acceptable for the separate state and federal regulatory processes. As indicated in the "*Draft [accepted as Final] Biological Assessment*" (AMEC 2007) prepared for the Project (Appendix 2) and confirmed at subsequent agency meetings, impacts to California streambeds and "waters of the United States" would be avoided in all aspects of the Project.

On December 6, 2007, a draft CESA Section 2081 application was submitted to CDFG representatives Tonya Moore and Curt Taucher for review purposes. Narrative addressing comments generated by this review have been incorporated into the current application. On December 20, 2007, a coordination meeting between EPA, FWS, CEC and CDFG was also convened in Sacramento, California. A detailed overview of the Project was provided at this meeting and all involved agency requirements, desert tortoise translocation planning details and Project scheduling were discussed.

Responding to an ESA Section 7 consultation request submitted by EPA regarding its issuance of a PSD Permit, the FWS forwarded a draft biological opinion to EPA regarding the Project on December 12, 2007. The FWS cover letter of this draft opinion requested additional information about the Project, including (1) whether any project changes had occurred since the initial biological assessment was prepared; (2) whether cooling tower mist might affect habitat for the least Bell's vireo and southwestern willow flycatcher; and (3) whether the translocation plan would be made a part of the final biological opinion.

A Biological Assessment Addendum was then prepared by the Project proponent to specifically provide the information requested by FWS. This Biological Assessment Addendum was filed with the CEC on January 12, 2008. Upon review of information contained in the Biological Assessment Addendum, the FWS concluded that the inclusion of a translocation plan in the biological assessment was not necessary for biological opinion issuance, as long as the translocation plan contained specific information and was subject to FWS approval prior to the initiation of surface disturbance work. A final biological opinion on the Project (1-08-07-F-67) was issued by FWS to EPA on January 23, 2008 (Appendix 5).

On January 28, 2008, following a field visit to the Project site, CDFG Representative Tonya Moore requested additional information from the Project proponent regarding how vehicle access to the Project's linear utility features was to occur. Specific details regarding Segment 3 linear utility features and potential Project effects to the least Bell's vireo, the southwestern willow flycatcher and state streambeds was also requested. Further, the Project proponent was informed that any CESA Section 2081 application submittal would not be considered complete until the associated desert tortoise translocation plan was approved by CDFG. A Biological Assessment Second Addendum (Appendix 4) was prepared to provide the CDFG-requested information.

(4) The location where the project or activity is to occur or to be conducted.

The Project would be located primarily within the northwestern portion of Victorville, California (Township 6 North, Range 5 West, Sections 2 and 11, in part, San Bernardino Base Meridian, Helendale and Victorville Northwest U.S. Geological Survey 7.5 Minute Topographic Quadrangles). A portion of the Project's Segment 3 linear utility feature (i.e., electrical transmission line) also traverses lands within the Hesperia, California jurisdiction.

Regionally, the Project would be located in the western Mojave Desert north of the north-facing foothills of the San Bernardino Mountains; in an area of diverse geologic features and plant communities. The Mojave River, situated east of the Project area, is the signature hydrologic feature of the region. Above-ground water flow occurs 1 to 2 miles upstream from the Project area at the Lower Narrows reach of the Mojave River. This water flow supports sporadic riparian vegetation along the Mojave River's streambanks and in some mid-stream locales in proximity to the Project area. This water flow becomes sub-surface in proximity to the Project area, except during/following high precipitation events.

Varying-size washes drain the terrain upon which the main power plant facility and associated water/gas pipelines would be located. These washes ultimately drain into the Mojave River. Flat to slightly hilly terrain also supporting varying-size washes also generally characterizes the remaining portion of the Project area where the transmission line improvements would occur. Unimproved dirt roads and trails occur throughout the area of the proposed power plant site, along the proposed pipeline routes, and along linear utility feature Segment 1.

The highest elevation of the Project area is 3,720 feet above mean sea level (MSL), at the southern terminus of proposed utility feature Segment 3 where it connects to the existing Lugo Electric Substation. The lowest elevation on the proposed power plant site itself is 2,730 feet above MSL, adjacent to its eastern boundary. The Project's lowest elevation site is located at 2,600 feet above MSL, in the vicinity of the proposed reclaimed-water pipeline's entry into the VVWRA wastewater treatment plant on the western bank of the Mojave River.

No Project activities are proposed to occur within the Mojave River or modify washes; therefore no riparian vegetation or streambank impacts would occur as a result of the Project.

(5) An analysis of whether and to what extent the project or activity for which the permit is sought could result in the taking of species to be covered by the permit.

Implementation of the Project would directly impact 438.5 acres of native plant communities (Creosote Bush Scrub, Saltbush Scrub, and Mojavean Juniper Woodland and Scrub) that are considered suitable habitat for the desert tortoise and MGS. A portion of this native plant community habitat is known to be occupied by small numbers (2-6) of desert tortoise.

The 438.5-acre native plant community area also has been assumed by the Project Proponent to be occupied by MGS, based on the presence of habitat suitable for the species. In 2007, one individual MGS was identified on an immediately adjacent property, in a trapping effort encompassing over 1000 acres. As described above, small mammal trapping surveys conducted in 2006 within the power plant area did not document MGS. Small mammal trapping surveys were not conducted in the linear utility areas. However, it is reasonable to assume that, if actually present, a few MGS could be taken as a result of the Project as a whole.

As a result of Project construction work, habitat of the Covered Species would be temporarily impacted in some areas, with some degree of habitat recovery expected in the future. In other areas, habitat would be permanently lost as the result of power plant installation. Habitat impacts would include the removal and/or disturbance of native soils and vegetation during the course of Project site grading, construction work (i.e., power plant, transmission line towers, and pipelines), and equipment staging/storage.

A total of 53.6 acres of disturbed/developed land and three acres of non-native grassland would also be temporarily affected or permanently removed as a result of the Project. However, this disturbed and non-native vegetation acreage is considered to be of little substantial habitat value for the Covered Species, based on the amount of animal sign observed in these vegetation communities and overall vegetation condition. Therefore, acreage within these two plant communities has been excluded from affected habitat calculations for the Covered Species (see Tables 1 to 3 above).

(6) An analysis of the impacts of the proposed taking on the species.

The Project has the potential for incidental take of the Covered Species, as identified in the "*Draft [accepted as Final] Victorville 2 Hybrid Power Project Biological Assessment*" (Appendix 2), the "*Victorville 2 Hybrid Power Project Biological Assessment Addendum*" (Appendix 3) and the "*Victorville 2 Hybrid Power Project Biological Assessment Second Addendum*" (Appendix 4). The "*Biological Opinion for the Victorville 2 Hybrid Power Project, San Bernardino County, California*" (1-08-07-F-67) has also been issued by the FWS (2008) for the Project (Appendix 5).

Anticipated incidental take, i.e., animal harassment, harm or mortality, of the Covered Species could result from general surface disturbance and vegetation removal of 438.5 acres of native plant communities considered suitable habitat for these species within the Project's temporary and permanent surface disturbance areas. Incidental take could also occur due to Project equipment and vehicle collisions with undetected animals, as well as the potential crushing of animals within occupied burrows. Construction activity dust also could also settle on area vegetation situated immediately adjacent to the Project, potentially impacting habitat suitability for the Covered Species to a small, localized degree.

In general, Project construction activities have been estimated to result in the permanent loss of 292.1 acres of Covered Species' habitat, as well as the temporary loss of 146.4 acres of suitable habitat for these two species. The length of time necessary for temporarily disturbed habitat to return to pre-disturbance values is difficult to quantify, but would exceed several years. Afterwards, temporarily disturbed lands would be available as habitat.

Increased traffic on access roads associated with the Project is anticipated both during the initial construction phase and during routine operations. This increased traffic poses the potential for increased vehicle-related mortality of the Covered Species.

Increased vehicle-related wildlife mortality can enhance food provisioning opportunity for the common raven and other Covered Species predators. Constructed Project structures may also provide nesting and/or shading habitat for the common raven. Planned facility fencing may also provide enhanced perching opportunities for this avian species, in addition to fragmenting Covered Species habitat.

As part of the Project, a suite of measures will be implemented to minimize potential impacts to the Covered Species. Temporary and permanent desert tortoise exclusion fencing, pre-construction clearance surveys, translocation of at-risk desert tortoises, relocation of unearthed MGS (if present), well-defined work zones; environmental awareness training, a common raven management and control plan, as well as biological monitoring and reporting, have been prescribed to accomplish this objective.

Two adult tortoises have been documented within the footprint of the Project area and four additional tortoises were observed adjacent to linear utility features associated with the Project. Consequently, the translocation of two or more desert tortoises from the power plant site to a pre-determined offsite location to be approved by involved regulatory agencies is anticipated. The removal of at-risk desert tortoises out of harm's way from linear utility features to suitable habitat within the affected animals' home range is also anticipated. Techniques for desert tortoise handling and translocation, as well as translocation area options have been detailed in the "*Victorville 2 Hybrid Power Project Desert Tortoise (Gopherus agassizii) Translocation Plan*" (Appendix 4, Exhibit D).

At-risk hatchling and/or juvenile desert tortoises could also be found during clearance surveys of the main power plant facility, the ancillary Project pipeline localities or during transmission line improvement work. These animals would also be translocated according to specifications outlined in the "*Victorville 2 Hybrid Power Project Desert Tortoise (Gopherus agassizii) Translocation Plan*" (Appendix 4, Exhibit D) if found in the power plant site; or alternatively, moved to suitable habitat within the affected animals' home range, if found within areas of the Project's linear utility features.

While techniques exist to conclusively determine occupancy of burrows with regard to desert tortoise, it is more difficult to ascertain with complete certainty relative to potential MGS burrow occupancy. MGS, if unearthed during surface disturbing activities of the Project, would be relocated to burrows of similar structure to those impacted within adjacent suitable habitat (Appendix 2), according to Department-approved methods for relocating this species. Only qualified personnel would handle any MGS to be relocated out of harm's way.

Covered Species injured during the life of the Project, if any, would be transported at the City of Victorville's expense to local veterinary facilities qualified to provide appropriate care. Once care has been provided, if the animal is capable of survival and free of diseases, it would be released back to suitable habitat in accordance with direction specified in the Desert Tortoise Translocation Plan and according to concurrent FWS/CDFG direction.

Any Covered Species found dead during the course of Project activities would be provided to the San Bernardino County Museum or local educational/museum facilities for educational purposes, following FWS/CDFG notifications and approvals.

(7) An analysis of whether issuance of the incidental take permit would jeopardize the continued existence of a species. This analysis shall include consideration of the species' capability to survive and reproduce, and any adverse impacts of the taking on those abilities in light of (A) known population trends; (B) known threats to the species; and (C) reasonably foreseeable impacts on the species from other related projects and activities.

Issuance of an incidental take permit for the Project would not jeopardize the continued existence of either Covered Species, due both to the small magnitude of Project impacts and to the perceived population attributes of both species in the Project vicinity.

It is anticipated that fewer than five desert tortoises would be affected by the Project. This is a relatively small number relative to the total number of desert tortoises estimated to occur within the western Mojave Desert. Populations of the species are known to occur in several other locales within the western Mojave Desert at higher densities than those affected by this Project and in areas considered to be more important for species maintenance and recovery. The Fremont-Kramer Desert Wildlife Management Area, located four miles north of the Project area, is one of three such western Mojave Desert localities designated as critical for the species that have been estimated to support 5-100 desert tortoises per square mile (FWS 1994).

Lands in the Fremont-Kramer Desert Wildlife Management Area of Critical Environmental Concern (BLM 2005) and similarly protected western Mojave Desert critical habitat areas, unlike the Project area, are also situated at a considerable distance from urban interface zones experiencing rapid development pressure. The predominant public lands of these critical habitat areas are not facing imminent development pressure common to private lands occurring in proximity to the 465-acre Project area and encompass several thousand acres.

Public lands in the Fremont-Kramer Desert Wildlife Management Area of Critical Environmental Concern (BLM 2005) and similarly protected western Mojave Desert critical habitat areas have been identified by both the BLM and FWS as sufficient to ensure the capability of the desert tortoise to survive and reproduce in the western Mojave Desert. This conclusion has been made in light of known population trends and threats to the species, as well as in consideration of reasonably foreseeable impacts on the species from other related projects and activities. Implementation of the Project would not significantly diminish the range of the desert tortoise, adversely affect areas designated as critical habitat for the species or appreciably reduce acreage occupied by the species in the wild.

MGS (if any) would not be expected to occur in large numbers within the Project area, as described previously. While a single MGS has been identified in a proximal trapping survey conducted in 2007 (Ryan Young, pers. comm.), the Project is located on the periphery of the species' historic range and no individual MGS were trapped during a 2006 small mammal trapping survey of the proposed power plant area.

MGS populations are known to occur in several other locales spanning thousands of acres within the western Mojave Desert, including those protected lands designated as crucial for the species which occur within the Fremont-Kramer Desert Wildlife Management Area of Critical Environmental Concern (BLM 2005). Implementation of the Project would not significantly diminish the known range of the species, adversely affect areas designated as crucial for MGS or appreciably reduce acreage occupied by the species.

While cumulative habitat loss for the Covered Species would occur as a result of the Project, measures consistent with prescriptions identified in the West Mojave Plan (BLM 2005) have been included to fully mitigate this habitat loss and minimize the amount of anticipated incidental take of individual animals of both species. These measures also further objectives identified in the Desert Tortoise (Mojave Population) Recovery Plan (FWS 1994). The capability of both Covered Species to survive and reproduce throughout the western Mojave Desert region therefore would not be appreciably diminished with issuance of an incidental take permit for the Project.

(8) Proposed measures to minimize and fully mitigate the impacts of the proposed taking.

a. Before initiating ground-disturbing activities, the City of Victorville or its appointed agent will designate a biologist (Designated Biologist) knowledgeable and experienced in the biology and natural history of the Covered Species to monitor construction activities in areas of Covered Species suitable habitat to help avoid the take of individual animals and to minimize habitat disturbance. The CDFG will be notified in writing, prior to commencement of ground-disturbing activities, of the Designated Biologist's name, business address, and telephone number. CDFG will provide the City of Victorville with its approval of the Designated Biologist within 30 days of CDFG's receiving notification of the proposed Designated Biologist information.

b. The City of Victorville or its appointed agent will develop and implement a Worker Environmental Awareness Program (WEAP) in which each of its employees, as well as employees of contractors and subcontractors who work on the Project site or any related facilities during site mobilization, ground disturbance, grading, construction, operation, and closure, are informed about sensitive biological resources associated with the Project.

The WEAP will:

1. Be developed by or in consultation with the Designated Biologist and consist of an on-site or training center presentation in which supporting written material and electronic media is made available to all participants.

2. Discuss the locations and types of sensitive biological resources on the Project site and adjacent areas.

3. Present the reasons for protecting these resources.

4. Present the meaning of various temporary and permanent habitat protection measures.

5. Identify whom to contact if there are further comments and questions about the material discussed in the program.

6. Include a training acknowledgement form to be signed by each worker indicating that they received training and shall abide by the guidelines.

The WEAP may be administered by a competent individual acceptable to the Designated Biologist and must include a discussion of the management measures provided in this CESA Section 2081 Permit. Upon completion of the WEAP, the signed training acknowledgement forms will be filed at City of Victorville offices and will be made available to the CDFG upon request.

c. The City of Victorville or its appointed agent will ensure that exclusion fencing is constructed around temporary and long-term surface disturbance areas and pre-construction clearance surveys are conducted as described in the Biological Assessment prepared for the Project.

d. All clearance and translocation efforts identified in the Desert Tortoise Translocation Plan for the Project will be implemented to protect desert tortoises. If a desert tortoise or Mohave ground squirrel is found in a burrow during Project-related activities in the Project area, it will be relocated to a burrow or protected area at an off-site location; according to direction provided in the ESA/CESA Incidental Take Permits issued for the Project and in the Desert Tortoise Translocation Plan.

e. A trash abatement program will be initiated during pre-construction phases of The Project, and will continue through the duration of the Project. Trash and food items will be contained in closed (raven-proof) containers and removed regularly (at least once a week) to avoid attracting opportunistic predators such as ravens, coyotes, and feral dogs.

f. The City of Victorville or its appointed agent will notify the CDFG and shall document compliance with all pre-construction Conditions of Approval required by the CDFG associated with this CESA Section 2081 Permit before initiating ground-disturbing activities.

g. The City of Victorville or its appointed agent will acquire 408.5 acres of Habitat Management Lands approved by the CDFG ("HM Lands") for the Covered Species prior to initiating ground- disturbing Project activities, or no later than 18 months from the effective date of acquiring a CESA Section 2081 Permit, if financial assurances are provided for acquisition of the HM Lands.

h. The amount of the required HM Lands is based upon an estimate of the acreage required to provide for adequate biological carrying capacity at a replacement location as a means of fully mitigating the Project's impacts on the Covered Species.

   The City of Victorville intends to provide financial assurances to ensure funding to complete the acquisition of HM Lands by providing to the CDFG, prior to commencing ground-disturbing activities:

   (1) a long-term habitat management endowment of $570,050.00 (calculated at a rate of $1,300.00 per acre for 438.5 acres of HM Lands) for permanent preservation of acquired HM Lands; and

   (2) an irrevocable letter of credit, a pledged savings account, or another form of security such as an irrevocable escrow account (Security) acceptable to CDFG in the amount of $548,125.00.

   The amount of the Security is calculated as follows:

   i. Land acquisition costs for impacts to habitat, calculated at $1,000/acre for 438.5 acres: $438,500.00.

   ii. Costs of enhancing HM lands, calculated at $250.00/acre for 438.5 acres: $109,625.00.

   Interest accrued from the long-term habitat management endowment will be applied towards improving the HM Lands managed for the Covered Species. The Security will provide that CDFG may draw on the principal sum if it is determined that the City of Victorville has failed to comply with the Conditions of Approval of the CESA Section 2081 Permit.

   The Security will be returned to the City of Victorville upon completion of the legal transfer of the HM Lands to the CDFG, or upon completion of an implementation agreement with a third party mitigation banking entity, acceptable to CDFG, to acquire and/or manage the HM Lands.

i. For the duration of Project construction activities, the City of Victorville or its appointed agent will conduct compliance inspections at least once a week to assess compliance with measures adopted to minimize and mitigate all construction-phase impacts.

j. Every month for the duration of Project construction activities, the City of Victorville or its appointed agent will provide the CDFG with a written Compliance Report to communicate observations made during compliance monitoring, as well as all other relevant information obtained by the City of Victorville or its appointed agent.

k. Beginning with issuance of the CESA Section 2081 Permit and continuing for the life of the CESA Section 2081 Permit, the City of Victorville or its appointed agent will provide the CDFG with an annual Status Report no later than January 31st of every year.

l. Each Annual Status Report will include, at a minimum: 1) a general description of the status of the Project, including actual or projected completion dates, if known; 2) a copy of the Biological Resources Mitigation Implementation Monitoring Plan (BRMIMP) with notes showing the current implementation status of each mitigation measure; and 3) an assessment of the effectiveness of each mitigation measure in minimizing and compensating for Project impacts. The BRMIMP is a requirement of the CEC permit for the Project and will include all of the requirements of a CDFG Mitigation, Monitoring and Reporting Plan.

m. The City of Victorville or its appointed agent will immediately notify the CDFG in writing if it determines that any of the mitigation measures were not implemented during the period indicated in the CESA Section 2081 Permit, or if the City of Victorville believes for any reason that measures may not be implemented within the time period indicated in the BRMIMP.

n. All observations of Covered Species and their sign during Project construction activities will be conveyed to the City of Victorville's Designated Representative or Designated Biologist. This information will be included in the next monthly compliance report to the CDFG.

o. The City of Victorville's Designated Biologist will have authority to immediately stop any activity that is not in compliance with the CESA Section 2081 Permit, and to order any reasonable measure to avoid the take of an individual of a Covered Species.

p. Personnel will access the City of Victorville's Project site using existing routes and will not cross Covered Species habitat outside of the Project site. To the extent possible, previously disturbed areas within the Project site will be used for temporary storage areas, material laydown sites, and any other surface- disturbing activities.

q. If construction of offsite routes of travel will be required, the CDFG will be contacted prior to carrying out such an activity.

All Project-related parking and equipment storage will be confined to the Project site and construction staging areas. Off-site Covered Species habitat will not be used for parking or equipment storage.

Project-related vehicle traffic will be restricted to established roads, staging, and parking areas. The City of Victorville or its appointed agent will post signs; place posting stakes, flags, and/or rope or cord; and place fencing as necessary to minimize the disturbance of Covered Species habitat.

Vehicle speeds shall not exceed 20 mph on unpaved roads in the Project area in order to enhance the ability of vehicle operators to detect and avoid desert tortoise and Mohave ground squirrel on or traversing the roads.

r. If a desert tortoise or Mohave ground squirrel is killed by Project-related activities during construction, or if a Mohave ground squirrel and/or desert tortoise is otherwise found dead, a written report will be sent to the CDFG within two (2) calendar days. The report will include the date, time of the finding or incident, location of the carcass, and the circumstances.

s. The City of Victorville or its appointed agent will comply with any stop-work order issued by the CDFG immediately upon receipt thereof, to remedy a violation of CESA Section 2081 Permit conditions or to prevent the illegal take of an endangered, threatened, or candidate species.

t. No later than 45 days after completion of Project construction activities and implementation of all mitigation measures, the City of Victorville or its appointed agent will provide the CDFG with a Final Mitigation Report.

u. This report will be prepared by the Designated Biologist and will include, at a minimum:

(1) a copy of the proposed plan to monitor compliance with the mitigation and minimization measures, notes showing when each of the mitigation measures was implemented;

(2) all available information about project-related incidental take of species named in the CESA Section 2081 Permit;

(3) construction dates;

(4) an assessment of the effectiveness of each mitigation measure;

(5) recommendations on how mitigation measures might more effectively minimize and mitigate impacts; and

(6) any other pertinent information.

(9) A proposed plan to monitor compliance with the minimization and mitigation measures and the effectiveness of the measures.

The Biological Resources Mitigation Implementation Monitoring Plan (BRMIMP) is a requirement of the CEC permit for the Project. It will include all requirements of a CDFG Mitigation, Monitoring and Reporting Plan (MMRP). This BRMIMP has been provided in a table form below to simplify subsequent reporting tasks. It outlines the source of the mitigation measure, the implementation schedule, the party responsible for completing the mitigation measure and the status, date as well as initials, of the individual certifying completion of the measure.
No later than 45 days after completion of the Project, including implementation of all mitigation measures, the City of Victorville will provide the CDFG with a Final Mitigation Report. The Final Mitigation Report will be prepared by the Designated Biologist and shall include, at a minimum:

1) a copy of the BRMIMP table with notes showing when each of the mitigation measures was implemented;

2) all available information about Project-related incidental take of Covered Species;

3) information about other Project impacts on Covered Species;

4) construction dates;

5) an assessment of the effectiveness of each mitigation measure in minimizing and compensating for Project impacts;

6) recommendations on how mitigation measures might be changed to more effectively minimize and mitigate the impacts of future projects on the Covered Species; and

7) any other pertinent information.

Victorville 2 Hybrid Power Project Biological Resources Mitigation Implementation Monitoring Plan (BRMIMP)

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date / Initials
PRE-CONSTRUCTION					
1	Before initiating ground-disturbing activities, the City of Victorville, as the Permittee shall designate a representative (Designated Representative) responsible for communications with the CDFG and for overseeing compliance with this Permit. The CDFG shall be notified in writing prior to commencement of ground-disturbing activities of the representative's name, business address, and telephone number, and shall be notified in writing if a substitute representative is designated.	Permit	Pre-Project/ Entire project	Permittee	
2	Before initiating ground-disturbing activities, the City of Victorville, as the Permittee, shall name a biologist (Designated Biologist) that is knowledgeable and experienced in the biology and natural history of the Covered Species. The Designated Biologist will be responsible for monitoring construction activities in areas of Covered Species habitat to help avoid the take of individual animals and to minimize habitat disturbance. The CDFG shall be notified in writing prior to commencement of ground-disturbing activities of the Designated Biologist's name, business address, and telephone number. CDFG shall provide the City of Victorville with its decision whether to approve the Designated Biologist within 30 days of CDFG's receipt of the City of Victorville's notification of the proposed Designated Biologist. Designated Biologist.	Permit	Pre-project	Permittee	

(9) Continued. Victorville 2 Hybrid Power Project Biological Resources Mitigation Implementation Monitoring Plan (BRMIMP).

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date / Initials
3	The City of Victorville, as the Permittee, shall conduct an Worker Environmental Awareness Program (WEAP) for all persons who will work on-site during Project implementation and construction. The WEAP shall include a discussion of the biology of the Covered Species, the habitat needs of these species, their status under CESA, and the management measures required per this Permit. Upon completion of the WEAP, employees shall sign a form stating that they attended the program and understand all required protection measures. These forms shall be filed at City of Victorville offices and shall be made available to the CDFG upon request.	Permit	Pre-Project/ Entire project	Permittee	
4	The City of Victorville, as the Permittee, shall ensure exclusion fencing is constructed around temporary and permanent surface disturbance areas and that pre-construction clearance surveys are conducted by qualified personnel as described in the Biological Assessment prepared for the Project.	Permit	Pre-Project/ Entire project	Permittee	
5	The City of Victorville, as the Permittee, shall ensure that any desert tortoise or Mohave ground squirrel found in a burrow during Project-related activities in the Project area is relocated according to direction specified in incidental take permits issued for the Project and in the Desert Tortoise Translocation Plan.	Permit	Pre-Project/ Entire project	Permittee	

(9) Continued. Victorville 2 Hybrid Power Project Biological Resources Mitigation Implementation Monitoring Plan (BRMIMP).

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date / Initials
6	The City of Victorville, as the Permittee, shall notify the CDFG and shall document compliance with all pre-construction Conditions of Approval before initiating ground-disturbing activities.	Permit	Pre-project	Permittee	
7	A trash abatement program shall be initiated during pre-construction phases of the Project, and shall continue through the duration of the Project. Trash and food items shall be contained in closed (raven-proof) containers and removed regularly (at least once a week).	Permit	Pre-Project/ Entire project	Permittee	
8	The City of Victorville, as the Permittee, shall acquire and permanently preserve 438.5 acres of Habitat Management Lands ("HM Lands"). These HM Lands are to be approved by the CDFG as suitable replacement habitat for the Covered Species prior to initiating ground-disturbing project activities or no later than 18 months from the effective date of this Permit, if a long-term habitat management endowment and Security are provided pursuant to Condition 8(i) of the CESA Section 2081 Permit. HM Lands shall be transferred to the CDFG or an approved third party mitigation banking entity in accordance with Condition 8(i) of the CESA Section 2081 Permit.	Permit	Pre-project	Permittee	

(9) Continued. Victorville 2 Hybrid Power Project Biological Resources Mitigation Implementation Monitoring Plan (BRMIMP).

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date / Initials
9	(1) The City of Victorville, as the Permittee, may proceed with ground-disturbing Project activities only if Covered Species are moved out of harm's way in an approved manner in accordance with the federal Biological Opinion, CESA 2081 Permit and Desert Tortoise Translocation Plan. (2) The long-term habitat management endowment of **$570,050.00** (calculated at set rate of $1,300.00 per acre for 438.5 acres), as described above in Condition 8(i), and (3) An irrevocable letter of credit, a pledged savings account, or another form of security ("Security") approved by the Office of the General Counsel, covering HM Lands acquisition and initial HM habitat enhancement costs. The Security shall allow the CDFG to draw on the principal sum if the CDFG, at its sole discretion, determines that Permittee has failed to comply with the Conditions of Approval of this Permit. The Security shall be in the amount of **$548,125.00** based on the following estimated costs of implementing the Permit's mitigation, monitoring and reporting requirements: -Land acquisition costs for impacts to habitat, calculated at set rate of $1,000.00/acre for 438.5 acres: **$438,500.00.** -Costs of initial enhancement HM lands, calculated at set rate of $250.00/acre for 438.5 acres: **$109,625.00.**	Permit	Pre-project	Permittee	

(9) Continued. Victorville 2 Hybrid Power Project Biological Resources Mitigation Implementation Monitoring Plan (BRMIMP).

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date / Initials
DURING CONSTRUCTION					
10	For the duration of construction activities, The City of Victorville, as the Permittee, shall conduct compliance inspections at least once a week to assess compliance with all construction-phase impact minimization and mitigation measures.	Permit	Pre-project	Permittee	
11	Every month for the duration of construction activities, the City of Victorville, as the Permittee, shall provide the CDFG with a written Compliance Report for observations made during monitoring, as well as other information obtained by Permittee. Beginning with issuance of the CESA 2081 Permit and continuing for the life of the Project, the Permittee shall provide the CDFG with an annual Status Report no later than January 31st of every year. Each Status Report shall include, at a minimum: 1) a general description of the status of the Project, including actual or projected completion dates, if known; 2) a copy of the BRMIMP with notes showing the current implementation status of each mitigation measure; and 3) an assessment of mitigation measure effectiveness in minimizing and compensating for project impacts.	Permit	Pre-project	Permittee	

(9) Continued. Victorville 2 Hybrid Power Project Biological Resources Mitigation Implementation Monitoring Plan (BRMIMP).

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date / Initials
12	The City of Victorville, as the Permittee, shall immediately notify the CDFG in writing if it determines that any of the mitigation measures were not implemented during the period indicated here or in the Permit, or if Permittee anticipates for any reason that measures may not be implemented within the time period indicated.	Permit	Entire project	Permittee	
13	All observations of Covered Species and their sign during Project construction activities shall be conveyed to the Permittee's Designated Representative or Designated Biologist. This data shall be included in the next monthly compliance report to the CDFG.	Permit	Entire project	Permittee	
14	The Designated Biologist shall have authority to immediately stop any activity that is not in compliance with the CESA Section 2081 Permit, and to order any reasonable measure to avoid the take of an individual of a Covered Species.	Permit	Entire project	Permittee	
15	Personnel shall access the Project site using existing routes and shall not cross Covered Species habitat outside of the Project. To the extent possible, previously disturbed areas within the Project site shall be used for temporary storage areas and any other surface-disturbing activities. If use of offsite routes of travel will be required, the CDFG shall be contacted prior to carrying out such an activity. This CESA Section 2081 Permit may require amendment if additional take of Covered Species may result from project modification.	Permit	Entire project	Permittee	

(9) Continued. Victorville 2 Hybrid Power Project Biological Resources Mitigation Implementation Monitoring Plan (BRMIMP).

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date / Initials
16	The City of Victorville, as the Permittee, shall ensure that any fuel or hazardous waste leaks or spills shall be stopped and repaired immediately, as well as cleaned up at the time of occurrence. The storage and handling of hazardous materials shall be excluded from the construction zone and any unused or leftover hazardous products shall be properly disposed of offsite.	Permit	Entire project	Permittee	
17	All Project-related parking and equipment storage shall be confined to the Project site and construction staging areas. Off-site Covered Species habitat shall not be used for parking or equipment storage. Project-related vehicle traffic shall be restricted to established roads, staging, and parking areas. The City of Victorville, as the Permittee, shall post signs; place posting stakes, flags, and/or rope or cord; and place fencing as necessary to minimize the disturbance of Covered Species habitat. Vehicle speeds shall not exceed 20 mph in order to maximize the ability of Project personnel to detect and avoid desert tortoise and Mohave ground squirrels on or traversing roads accessing the Project area.	Permit	Entire project	Permittee	
18	If a desert tortoise may be impacted by Project activities, it shall be moved to an approved, off-site location according to the desert tortoise translocation plan approved by the CDFG and FWS for the Project. The desert tortoise may only be moved by a qualified, permitted biologist.	Permit	Entire project	Permittee	

(9) Continued. Victorville 2 Hybrid Power Project Biological Resources Mitigation Implementation Monitoring Plan (BRMIMP).

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date / Initials
19	If a Mohave ground squirrel is found in a burrow during Project-related activities on the Project site, it shall be immediately relocated to a burrow at a protected off-site location approved by the CDFG. The Mohave ground squirrel may only be relocated to an approved location by a qualified biologist, in accordance with procedures identified by the CDFG in an issued CESA Section 2081 Permit.	Permit	Entire project	Permittee	
20	If a desert tortoise or Mohave ground squirrel is injured as a result of Project related activities, it shall be immediately taken to a CDFG-approved wildlife rehabilitation facility. Any costs associated with the care or treatment of such injured desert tortoises or Mohave ground squirrels shall be borne by the City of Victorville, as the Permittee. The CDFG shall be notified immediately of any injury to desert tortoise or Mohave ground squirrel, unless the incident occurs outside of normal business hours. In that event CDFG shall be notified no later than 12:00 noon on the next business day. Notification to CDFG shall be via telephone or email, followed by a written incident report. Notification shall include the date, time, location and circumstances of the incident, and the name of the facility to which the animal was taken.	Permit	Entire project	Permittee	

(9) Continued. Victorville 2 Hybrid Power Project Biological Resources Mitigation Implementation Monitoring Plan (BRMIMP).

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date / Initials
21	If a desert tortoise or Mohave ground squirrel is killed by Project-related activities during construction, or if a desert tortoise or Mohave ground squirrel is otherwise found dead, a written report will be sent to the CDFG within two (2) calendar days. The report will include the date, time of the finding or incident, location of the carcass, and circumstances.	Permit	Entire project	Permittee	
22	The CDFG may issue the City of Victorville, as the Permittee, a written stop-work order to suspend any activity covered by this permit for an initial period of up to 25 days to prevent or remedy a violation of Permit conditions (including but not limited to failure to comply with reporting, monitoring, or habitat acquisition obligations) or to prevent the illegal take of an endangered, threatened, or candidate species. Permittee shall comply with the stop-work order immediately upon receipt thereof. The CDFG may extend a stop-work order under this provision for a period not to exceed 25 additional days, upon written notice to the Permittee. The CDFG shall commence the formal suspension process pursuant to California Code of Regulations, Title 14, §783.7 within five working days of issuing a stop-work order.	MMRP	Entire project	Permittee	

(9) Continued. Victorville 2 Hybrid Power Project Biological Resources Mitigation Implementation Monitoring Plan (BRMIMP).

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date / Initials
POST CONSTRUCTION					
23	Upon Project completion, all construction refuse, including, but not limited to, broken equipment parts, wrapping material, cords, cables, wire, rope, strapping, twine, buckets, metal or plastic containers, and boxes shall be removed from the site and disposed of properly.	Permit	Post-project	Permittee	
24	No later than 45 days after completion of the Project, including implementation of all mitigation measures, the City of Victorville, as the Permittee, shall provide the CDFG with a Final Mitigation Report. The Final Mitigation Report shall be prepared by the Designated Biologist and shall include, at a minimum: 1) a copy of the BRMIMP table with notes showing when each of the mitigation measures was implemented; 2) all available information about Project-related incidental take of Covered Species; 3) information about other Project impacts on Covered Species; 4) construction dates; 5) an assessment of the effectiveness of each mitigation measure in minimizing and compensating for Project impacts; 6) recommendations on how mitigation measures might be changed to more effectively minimize and mitigate the impacts of future projects on the Covered Species; and 7) any other pertinent information. Permittee's monitoring and reporting obligations under this BRMIMP will end only after the CDFG accepts the Final Mitigation Report as complete.	Permit	Post-project	Permittee	

(10) A description of the funding source and the level of funding available for implementation of the minimization and mitigation measures.

The City of Victorville, as the Project Proponent, will provide financial assurances to guarantee an adequate level of funding is available to implement all minimization, mitigation and compensation measures identified in the CESA Section 2081 Permit. These funds will be used solely for implementation of the minimization, mitigation and compensation measures associated with this Project.

The City of Victorville intends to provide financial assurances in the form of an irrevocable letter of credit, a pledged savings account or another form of security (Security) approved by the CDFG Office of the General Counsel, to ensure funding in the amount of $548,125.00.

The amount of the Security is calculated as follows:

1. Land acquisition costs for impacts to habitat, calculated at $1,000/acre for 438.5 acres: $438,500.00.

2. Costs of enhancing HM lands, calculated at $250.00/acre for 438.5 acres: $109,625.00.

Interest accrued from the long-term habitat management endowment will be applied towards improving the HM Lands managed for the desert tortoise and Mohave ground squirrel. The Security will provide that CDFG may draw on the principal sum if it is determined that the City of Victorville has failed to comply with the Conditions of Approval of the CESA 2081 Permit.

The Security will be returned to the City of Victorville upon completion of the legal transfer of the HM Lands to the CDFG, or upon completion of an implementation agreement with a third party mitigation banking entity, acceptable to CDFG, to acquire and/or manage the HM Lands.

REFERENCES

AMEC. 2007. Victorville 2 Hybrid Power Project Biological Assessment. Report prepared for the City of Victorville for submittal to the California Energy Commission, the California Department of Fish and Game and the U.S. Environmental Protection Agency. On file with the California Energy Commission, Sacramento, California; the California Department of Fish and Game, Victorville, California; the City of Victorville Planning Department, Victorville, California; the U.S. Environmental Protection Agency, San Francisco, California; and the U.S. Fish and Wildlife Service, Ventura Field Office, Ventura, California.

AMEC. 2008. Victorville 2 Hybrid Power Project Biological Assessment Addendum. Report prepared for the City of Victorville for submittal to the California Energy Commission, the California Department of Fish and Game, the U.S. Environmental Protection Agency and the U.S, Fish and Wildlife Service. Victorville, California. On file with the California Energy Commission, Sacramento, California; the California Department of Fish and Game, Victorville, California; the City of Victorville Planning Department, Victorville, California; the U.S. Environmental Protection Agency, San Francisco, California; and the U.S. Fish and Wildlife Service, Ventura Field Office, Ventura, California.

AMEC. 2008. Victorville 2 Hybrid Power Project Biological Assessment Second Addendum. Report prepared for the City of Victorville for submittal to the California Energy Commission, the California Department of Fish and Game, the U.S. Environmental Protection Agency and the U.S, Fish and Wildlife Service. Victorville, California. Submitted to the California Energy Commission, Sacramento, California; the California Department of Fish and Game, Victorville, California; the City of Victorville Planning Department, Victorville, California; the U.S. Environmental Protection Agency, San Francisco, California; and the U.S. Fish and Wildlife Service, Ventura Field Office, Ventura, California.

Bureau of Land Management (BLM). 1998. California Desert District Victorville. Special Edition Surface Management Status Desert Access Guide. U.S. Department of the Interior, Bureau of Land Management, California State Office, Sacramento, California and U.S. Geological Survey, Denver, Colorado.

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California Department of Fish and Game (CDFG). 2007. California Endangered Species Act 2081 (b) and (c) Incidental Take Permit Process. California Department of Fish and Game, Sacramento, California.

Fish and Wildlife Service (FWS). 1994. Desert tortoise (Mojave population) recovery plan. U.S. Department of the Interior, Fish and Wildlife Service, Portland, Oregon. 73 pp plus appendices.

Fish and Wildlife Service (FWS). 2008. Biological Opinion for the Victorville 2 Hybrid Power Project, San Bernardino County, California (1-8-07-F-67). U.S. Department of the Interior, Fish and Wildlife Service, Ventura Field Office, Ventura, California. 36 pp plus references.

I certify that the information submitted in this application is complete and accurate to the best of my knowledge and belief. I understand that any false statement herein may subject me to suspension or revocation of this permit and to civil and criminal penalties under the laws of the State of California.

Name

3/12/08
Date

Appendix 1.

California Endangered Species Act Incidental Take Permit Process & Application Instructions

California Endangered Species Act

2081 (b) and (c) INCIDENTAL TAKE PERMIT PROCESS

Sections 2081(b) and (c) of the California Endangered Species Act allow the Department to issue an incidental take permit for a State listed threatened and endangered species only if specific criteria are met. These criteria are reiterated in Title 14 CCR, Sections 783.4(a) and (b), and are as follows:

1. The authorized take is **incidental to an otherwise lawful activity**;

2. The impacts of the authorized take are **minimized and fully mitigated**;

3. The measures required to minimize and fully mitigate the impacts of the authorized take:
   a. are **roughly proportional** in extent to the impact of the taking on the species,
   b. **maintain the applicant's objectives** to the greatest extent possible, and
   c. **are capable of successful implementation**;

4. **Adequate funding** is provided to implement the required minimization and mitigation measures and to monitor compliance with and the effectiveness of the measures; and

5. Issuance of the permit **will not jeopardize the continued existence of a State-listed species.**

The terms and conditions of the permit will be determined by the Department and must ensure that the issuance criteria in items 1 through 5 above are met.

Measures to minimize the take of species covered by the permit (Covered Species) and to mitigate the impacts caused by the take will be set forth in one or more attachments to the permit. This attachment will generally be a mitigation plan (possibly a Habitat Conservation Plan) prepared and submitted by the Permittee in coordination with Department staff.

The mitigation plan should identify measures to avoid and minimize the take of State-listed species and to fully mitigate the impact of that take. These measures can vary from project to project. Some of the measures used in the past include: delineation of construction sites; take avoidance measures tailored to the affected species; preconstruction notification of the Department; employee education programs; reporting procedures when an animal is killed, injured or trapped; compliance inspections and reports; acquisition and transfer of habitat management lands; and associated funding (including money for document processing and for initial protection (e.g., fencing, posting, clean-up), and endowments for management of the lands in perpetuity). This list can serve as a partial inventory of measures that may be used to minimize and mitigate take, but these are not mandatory requirements and the list is not inclusive of all potential measures.

Applicants may propose alternative strategies for minimizing and fully mitigating impacts. The Department must be able to conclude, however, that the project's impacts are fully mitigated and the measures, when taken in aggregate, must meet the full mitigation standard.

If all mitigation and monitoring will not be completed prior to the start of activities that will affect State-listed species, a trust account or other form of security acceptable to the Department shall be established to ensure that funding is available to carry out mitigation measures and monitoring requirements in the event the applicant fails to complete these activities. The Department generally requires that security be in the form of a bank trust (or escrow) account, an irrevocable letter of credit, or similar form of security approved by the Legal Affairs Division (LAD).

No Section 2081(b) permit may authorize the take of "fully protected" species and "specified birds" (Fish and Game Code Sections 3505, 3511, 4700, 5050, 5515, and 5517). If a project is planned in an area where a fully protected species or a specified bird occurs, an applicant must design the project to avoid all take; the Department cannot provide take authorization for the species under CESA.

Complete requirements and procedures for CESA Incidental Take Permits are found in CCR Title 14, Sections 783.0 - 783.8 as follows:

Purpose and Scope of Regulations	Section 783.0
Prohibitions	Section 783.1
Incidental Take Applications	Section 783.2
Compliance with the California Environmental Quality Act	Section 783.3
Incidental Take Permit Review Standards	Section 783.4
Incidental Take Permit Process	Section 783.5
General Permit Conditions	Section 783.6
Permit Suspension and Revocation	Section 783.7
Reconsideration and Appeal Procedures	Section 783.8

The Incidental Take Permit process is normally initiated in the Region where the permitted activity will take place by contacting the appropriate Regional Office. Regional responsibilities also include: calling HCPB to get a CESA Tracking Number upon receipt of an Incidental Take Permit; reviewing the Incidental Take Permit Application to ensure it is complete; providing an acceptance letter to the applicant; working with the applicant in developing and preparing the Incidental Take Permit; preparing the CEQA Findings, the Mitigation Monitoring and Reporting Plan, and the Notice of Determination; and sending all along with the appropriate transmittal correspondence and signed CESA Tracking Surname Cover Sheet to the Chief, HCPB.

Headquarters responsibilities include assigning CESA Tracking Numbers, and following Regional submittal, HCPB will provide general review of the Incidental Take Permit Application for completeness, policy direction, and consistency with permitting standards. HCPB will coordinate with the LAD to insure statewide consistency with existing law and policy before delivering the Incidental Take Permit and the signed CESA Tracking Surname Cover Sheet to the LAD for their approval. The CESA Incidental Take Permit will be approved and signed by the Deputy Director of HCD after review by LAD. Headquarters will also provide training and assistance with procedures and policy issues to Department employees that work with CESA permitting.

OFFICIAL CALIFORNIA CODE OF REGULATIONS
TITLE 14. NATURAL RESOURCES, DIVISION 1. FISH AND GAME COMMISSION – DEPARTMENT OF FISH AND GAME

SUBDIVISION 3. GENERAL REGULATIONS

CHAPTER 6. REGULATIONS FOR IMPLEMENTATION OF THE CALIFORNIA ENDANGERED SPECIES ACT

ARTICLE 1. TAKE PROHIBITION; PERMITS FOR INCIDENTAL TAKE OF ENDANGERED SPECIES, THREATENED SPECIES AND CANDIDATE SPECIES

§783.2. Incidental Take Permit Applications.

(a) Permit applications. Applications for permits under this article must be submitted to the Regional Manager. Each application must include all of the following:

(1) Applicant's full name, mailing address, and telephone number(s). If the applicant is a corporation, firm, partnership, association, institution, or public or private agency, the name and address of the person responsible for the project or activity requiring the permit, the president or principal officer, and the registered agent for the service of process.

(2) The common and scientific names of the species to be covered by the permit and the species' status under CESA, including whether the species is the subject of rules and guidelines pursuant to Section 2112 and Section 2114 of the Fish and Game Code.

(3) A complete description of the project or activity for which the permit is sought.

(4) The location where the project or activity is to occur or to be conducted.

(5) An analysis of whether and to what extent the project or activity for which the permit is sought could result in the taking of species to be covered by the permit.

(6) An analysis of the impacts of the proposed taking on the species.

(7) An analysis of whether issuance of the incidental take permit would jeopardize the continued existence of a species. This analysis shall include consideration of the species' capability to survive and reproduce, and any adverse impacts of the taking on those abilities in light of (A) known population trends; (B) known threats to the species; and (C) reasonably foreseeable impacts on the species from other related projects and activities.

(8) Proposed measures to minimize and fully mitigate the impacts of the proposed taking.

(9) A proposed plan to monitor compliance with the minimization and mitigation measures and the effectiveness of the measures.

(10) A description of the funding source and the level of funding available for implementation of the minimization and mitigation measures.

(11) Certification in the following language:

I certify that the information submitted in this application is complete and accurate to the best of my knowledge and belief. I understand that any false statement herein may subject me to suspension or revocation of this permit and to civil and criminal penalties under the laws of the State of California.

(b) Information requirements; consultation with Department. Responses to the requirements of section 783.2(a)(5)-(a)(9) shall be based on the best scientific and other information that is reasonably available.

At an applicant's request, the Department shall, to the greatest extent practicable, consult with the applicant regarding the preparation of a permit application in order to ensure that it will meet the requirements of this article when submitted to the Department. An analysis prepared pursuant to state or federal laws other than CESA that meets the requirements of section 783.2 and 783.3 may be submitted in an incidental take permit application.

Appendix 2.

Victorville 2 Hybrid Power Project Biological Assessment (AMEC 2007)

DRAFT

Victorville 2 Hybrid Power Project
BIOLOGICAL ASSESSMENT

City of Victorville
San Bernardino County, California

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AMEC Job # 6554000228
Report Date: 2 May 2007

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Victorville 2 Hybrid Power Project BIOLOGICAL ASSESSMENT

1.0 INTRODUCTION

AMEC Earth & Environmental, Inc. (AMEC) has been contracted by ENSR Corporation on behalf of the City of Victorville and Inland Energy, Inc. to prepare a draft Biological Assessment (Draft BA) for the proposed Victorville 2 Hybrid Power Project (Proposed Project or Project) located in the City of Victorville, San Bernardino County, California (See Appendix 1, Map 1). The purpose of this document is to provide the U.S. Environmental Protection Agency (EPA) and the California Department of Fish and Game (CDFG) with site-specific analyses regarding species protected under the federal Endangered Species Act (ESA) and the California Endangered Species Act (CESA), as well as other special status species, which may be affected by the Proposed Project.

EPA will be consulting with the U.S. Fish and Wildlife Service (FWS) pursuant to Section 7 of the federal Endangered Species Act, regarding the effects of EPA's issuance of a Prevention of Significant Deterioration (PSD) permit for the Proposed Project (Proposed Action) under the federal Clean Air Act. It is anticipated that the Proposed Project also will be obtaining CESA permits from the CDFG.

The focal species addressed herein are the state and federally listed-Threatened Desert Tortoise (*Gopherus agassizii*), the state listed-Threatened Mohave Ground Squirrel (*Spermophilus mohavensis*) and the state-Protected Burrowing Owl (*Athene cunicularia*). In addition, this document assesses all potential impacts to the following state and federally-listed species:

- Arroyo Toad (*Bufo californicus*): Federally listed-Endangered;
- Bald Eagle (*Haliaeetus leucocephalus*): Federally listed-Threatened and California listed-Endangered;
- California Red-legged Frog (*Rana [aurora] draytonii*): Federally listed-Threatened;
- Least Bell's Vireo (*Vireo bellii pusillus*): Federally and California listed-Endangered.
- Southwestern Willow Flycatcher (*Empidonax trailii extimus*): Federally listed-Endangered;
- Western Yellow-billed Cuckoo (*Coccyzus americanus occidentalis*):California listed-Endangered; and
- Swainson's Hawk (*Buteo swainsonii*): California listed-Threatened.

A variety of species designated as "California Special Concern" (CSC) by CDFG and/or protected by the State of California are also addressed in this document. These include:

- Cooper's Hawk (*Accipiter cooperi*)
- Golden Eagle (*Aquila chrysaetos*)
- Gray Vireo (*Vireo vicinior*)

- Le Conte's Thrasher (*Toxostoma lecontei*)
- Loggerhead Shrike (*Lanius ludovicianus*)
- Mojave River Vole (*Microtus californicus mohavensis*)
- Northern Harrier (*Circus cyaneus*)
- Osprey (*Pandion haliaetus*)
- Pallid San Diego Pocket Mouse (*Chaetodipus fallax pallidus*)
- Prairie Falcon (*Falco mexicanus*)
- San Diego Coast Horned Lizard (*Phrynosoma coronatum blainvillii*)
- Southwestern Pond Turtle (*Actinemys marmorata pallida*)
- Summer Tanager (*Piranga rubra*)
- Vaux's Swift (*Chaetura vauxi*)
- White-faced Ibis (*Plegadis chihi*)
- Yellow Warbler (*Dendroica petechia*)
- Yellow-breasted Chat (*Icteria virens*)

The analyses provided in this Draft BA are the results of: 1) a general biological assessment and inventory; 2) a focused survey for Desert Tortoise; 3) focused Mohave Ground Squirrel trapping; and 4) focused Burrowing Owl surveys.

2.0 CRITICAL HABITAT

No lands designated or proposed as critical habitat would be affected by the Proposed Project. Critical habitat designated for the Southwestern Willow Flycatcher (Mojave Management Unit) is located 150 feet east of the Proposed Project's utility feature Segments 1 and 2 (See Appendix 1, Map 12). No surface disturbance would occur within this river habitat zone.

One designated critical habitat unit for the Desert Tortoise (Fremont-Kramer Desert Wildlife Management Area) is located approximately three miles north of the Proposed Project vicinity (Appendix 1, Map 9); but no surface disturbing activities associated with the Proposed Project are planned in this locality. Similarly, the southernmost portion of the Proposed Project's Utility Feature Segment 3 is located over ten miles north of lands designated as critical habitat for the Arroyo Toad (Upper Santa Ana River Basin/Cajon Wash Management Unit 20) and over 26 miles north of habitat designated as critical for the Least Bell's Vireo; with no effects to either habitat area resulting from the Proposed Project.

3.0 AGENCY NOTIFICATION AND PARTICIPATION TO DATE

An introductory meeting and site visit on the Proposed Project was held on 20 June 2006, with representatives of the Ventura FWS Field Office, CDFG and the California Energy Commission (CEC) attending. The agencies were informed that the EPA would likely be initiating ESA Section 7 consultation at some point in the future regarding federally-listed species potentially affected by the Proposed Project, and that a discussion would take place with CDFG regarding permitting under CESA. Although CDFG-approved trapping for Mohave Ground Squirrel in the proposed power plant area has not confirmed species' occurrence, the Project Proponent has

elected to assume species' presence based on the existence of potentially suitable habitat for Mohave Ground Squirrel on the Proposed Project site.

On February 28, 2007, the Project Proponent submitted an Application for Certification (AFC) to the CEC. The AFC was deemed data adequate by the CEC on April 11, 2007. The AFC includes a comprehensive discussion of the Proposed Project and all potential environmental impacts that may result from the Proposed Project, including biology and water. The AFC describes in detail the California Natural Diversity Data Base (CNDDB) analysis conducted, as well as the numerous sensitive species surveys undertaken to date, for all aspects of the Proposed Project and a description of how all unavoidable biological impacts of the Proposed Project are minimized and/or mitigated. On March 23, 2007, CDFG submitted a comment letter to the CEC requesting additional information regarding road access to the Project site. Those concerns are being addressed by the Project Proponent as part of the CEC process.

A meeting with the California Desert District Office of the Bureau of Land Management (BLM), CDFG, and FWS to discuss potential Desert Tortoise translocation sites and procedures was held on March 28, 2007, at the Ventura FWS Field Office. It was confirmed at this meeting that the FWS would issue an ESA Biological Opinion regarding the Desert Tortoise; with the CDFG issuing a separate CESA incidental take permit for Desert Tortoise and Mohave Ground Squirrel. FWS and CDFG representatives agreed at this meeting that a single BA addressing state/federally listed species, candidates for such listing, and species of special concern would be acceptable for these two separate regulatory processes.

As currently designed, the Proposed Project will not disturb any California streambeds or federal "Waters of the United States." However as discussed in the AFC, CDFG and the U.S. Army Corps of Engineers (USACE) will be notified immediately if design changes occur that would result in a potential impact to state or federal jurisdictional waters.

4.0 CURRENT MANAGEMENT DIRECTION

The Proposed Project is located entirely on private lands, primarily within the City of Victorville. Approximately five miles in the southernmost portions of the Proposed Project's 21 mile-length transmission line route (utility feature Segment 3) is located within the corporate boundaries of the City of Hesperia. The final 0.2 mile-length of this route is located on unincorporated lands within the jurisdiction of San Bernardino County. No public or federal lands are traversed by any portion of the Proposed Project.

Because the Proposed Project may result in an incidental take of a federally listed species (Desert Tortoise), and EPA will be issuing a PSD permit for the Proposed Project, EPA will be engaging in ESA Section 7 consultation with the FWS. The Project Proponent is submitting this Draft BA to EPA to facilitate its consultation with FWS. The FWS Ventura Field Office administers ESA Section 7 consultation actions in the Victorville, California region.

Similarly, because the Desert Tortoise and the Mohave Ground Squirrel are state-listed species under CESA, CESA Section 2081 incidental take permitting has also been identified as necessary. This Draft BA will be used in that regulatory process.

Lands and biological resources located in proximity to the Proposed Project have recently been addressed in the BLM's West Mojave Plan Amendment to the California Desert Conservation Plan (BLM 2005). This conservation planning document, based on an ESA Section 7 biological opinion, addressed the recovery and long-term conservation needs of many special status species occurring in the region.

No federal lands, FWS-designated critical habitat, CDFG-designated "crucial habitat", or BLM-"categorized" Desert Tortoise habitat (i.e., Category I, II, or III) are encompassed within the Proposed Project area. However, public lands managed as "Category III Desert Tortoise Habitat," having an estimated 1984 density of 0-20 Desert Tortoises per square mile, are located immediately north of the Proposed Project area (BLM 2005). The goals for BLM Category III habitat are to "limit tortoise habitat and population declines to the extent possible by mitigating impacts", per the *California Statewide Desert Tortoise Management Policy* (Policy) developed by the BLM and CDFG in 1992. When the latter policy was adopted, Category III Habitats were not considered essential to maintaining viable populations of the Desert Tortoise. These habitats were generally known for irreconcilable land use conflicts or were located in proximity to rapidly urbanizing landscapes.

One of the objectives of this statewide policy was to provide an incentive to locate development close to urbanizing areas, within Category III habitat where necessary, with the use of low habitat impact compensation requirements. Resulting compensation lands or funding was to be directed to consolidation and management of Category I and II habitat lands located at a distance from urban interface localities, where higher habitat impact compensation requirements would apply.

5.0 DESCRIPTION OF THE PROPOSED PROJECT

The Proposed Project is the construction and operation of a hybrid electrical facility consisting of natural gas-fired, combined cycle, generating equipment integrated with solar thermal generating equipment utilizing parabolic collector arrays. The Proposed Project would be located on primarily undeveloped lands within the northernmost portions of the City of Victorville, adjacent to the Southern California Logistics Airport (SCLA), formerly George Air Force Base (GAFB). This locality is situated approximately 0.5 mile west of the Mojave River (Appendix 1, Map 1).

The proposed power plant disturbance footprint, inclusive of fill slopes and new vehicle access surface disturbance, would total 338 acres. An additional 50 acres of temporary-use lands would be required for construction staging adjacent to the proposed power plant. One 30-acre construction staging area would be located north of Colusa Road and west of Helendale Road; with a second 20-acre staging area located south of Colusa Road and east of Helendale Road.

Seventy-seven acres of surface disturbance would also be required for utility features including two water pipelines, an above-ground power transmission line and associated staging areas (as further described below). The total combined project disturbance footprint would be 465 acres; with approximately 57 acres either currently developed or disturbed.

The Proposed Project would impact 408 acres of native plant communities and associated wildlife habitats. Primary vehicle access to the proposed power plant site would be via either Colusa Road, which would be minimally graded and paved, or Perimeter Road. Existing roads provide much of the vehicular access needs associated with the Proposed Project's linear utility features, with any new vehicle access addressed in the surface disturbance acreage specified above.

The new linear utility features of the Proposed Project (Appendix 1, Map 2) would include installation of the following:

- One new 4.3 mile-length, 230 kV, above-ground electric transmission line which would connect to the existing High Desert Power Plant (HDPP) transmission path;
- One new 5.7 mile-length, 230 kV, above-ground electric transmission line in an existing utility right-of-way (ROW) corridor, involving the installation of new electric lines on existing transmission tower structures and installation of three new transmission towers;
- One new 11 mile-length, 230 kV, above-ground electric transmission line in an existing utility ROW and relocation of a 6.6 mile-length, 115 kV, above-ground electrical transmission line within the same existing utility ROW;
- One 1.5 mile-length reclaimed water supply pipeline, connecting the proposed power plant site to the Victorville Wastewater Reclamation Authority (VVWRA) facility;
- One 1.4-25 mile-length sanitary wastewater pipeline, connecting the proposed power plant site to an existing sewer main;
- One natural gas supply pipeline; and
- One backup water supply pipeline.

The natural gas and backup water supply pipelines interconnect with existing pipelines in roadways located adjacent to the proposed power plant site. Potable water required by the Proposed Project would be provided via an onsite well.

The reclaimed water and sanitary wastewater pipelines would be installed together within a shared 50 foot-width ROW trench, located adjacent to the northernmost portion of the proposed electrical transmission line in Segment 1. The construction footprint within unshared ROW areas of the pipeline would be 25 feet-wide. These utility components are also described separately in detail in the Project Description (Section 3.2) of the AFC's Biological Technical Report. A representation of the orientation and layout of all Proposed Project facilities is provided in AFC Appendix 1, Map 2. Construction activities in support of the Proposed Project are currently scheduled to commence during the summer of 2008, with commercial operation currently scheduled to begin in the summer of 2010.

Heavy equipment anticipated for use in construction would include bulldozers, excavators, backhoes, cranes, scrapers, dump trucks, water trucks, and tractor trailers. Light duty personal vehicles would also be used in access road travel. Impacts to California streambeds and "Waters of the United States" would be avoided in all aspects of the Proposed Project.

Upon completion of construction activities, temporary surface disturbance areas would be revegetated in accordance with a Project Revegetation and Restoration Plan. This plan is to be completed prior to commencement of surface-disturbing activities and is to entail native plant and cacti salvage; associated post-construction "vertical mulching" utilizing salvaged shrubs/cacti; Joshua tree relocation; and hand-broadcast seeding of native plants. Salvaged plant material would either be stored onsite in temporary surface disturbance areas or cared for at an offsite nursery, until such time as needed for revegetation purposes.

Other natural resource impact minimization and special status species mitigation measures have been incorporated into the Proposed Project. These measures include but are not limited to pre-construction clearance surveys; Desert Tortoise translocation; offsite habitat impact compensation and monitoring of all construction, road grading and paving activities; as well as other measures. A comprehensive discussion of proposed impact minimization and mitigation is provided in Section 11 of this document.

6.0 PROPOSED PROJECT AREA

6.1 General Location and Description

The Proposed Project would be located primarily within the northwestern portion of Victorville, California (Township 6 North, Range 5 West, Sections 2 and 11, in part, San Bernardino Base Meridian, Helendale and Victorville Northwest U.S. Geological Survey 7.5 Minute Topographic Quadrangles). Portions of the Proposed Action (i.e., utility feature Segments 2 and 3) also traverse Hesperia, California jurisdictional lands within Victor Valley (See Appendix 1, Map 1).

Regionally, the Proposed Project would be located in the West Mojave Desert adjacent to the north-facing foothills of the San Bernardino Mountains; an area of diverse geologic features and plant communities. The Mojave River is the signature hydrologic feature of the region. Varying-size washes drain the hill, bajada and valley terrain located in proximity to the Mojave River. The river supports riparian (streamside) vegetation in some of its mid-stream reaches and flows past the Proposed Project area.

Temperatures in the region often exceed 100˚F in the summer, with low humidity exhibited. Fall and winter temperatures can fall below 32˚F. Mean annual rainfall is 5.60 inches with the bulk of rainfall occurring during winter months. Below-average rainfall occurred in the 2005-06 rainfall period. As a result, little annual plant growth occurred in the spring of 2006.

Flat to slightly hilly terrain generally characterizes the majority of the Proposed Project area. The highest elevation of the Proposed Project area would be 3,720 feet above mean sea level (MSL), at the southern terminus of proposed utility feature Segment 3 where it connects to the

existing Lugo Electric Substation. The Proposed Project's lowest elevation site would be located at 2,600 feet above MSL, in the vicinity of where the proposed reclaimed-water pipeline would enter the VVWRA plant. The lowest elevation on the proposed power plant site itself would be 2,730 feet above MSL, adjacent to its eastern boundary. Unimproved dirt roads and trails occur throughout the area of the proposed power plant site; along the proposed pipeline routes; and along utility feature Segment 1.

The western edge of the Mojave River is located in proximity to the eastern edge of the proposed power plant site (see Section 8.1 below). Above-ground water flow occurs in this reach of the river, but this flow becomes sub-surface at a short distance from the Proposed Project area. Portions of proposed utility feature Segment 1 intersect with numerous ephemeral washes, which drain eastward into the Mojave River. Numerous small wash drainages were also found to occur within the area proposed for placement of utility feature Segment 2; all of which drain eastward into the Mojave River. Several small wash drainages and Oro Grande Wash are also located in proximity to proposed utility feature Segment 3.

6.2 Existing Land Uses

Open space land best characterizes existing land uses in the immediate vicinity of the proposed power plant site, staging areas, and linear utility feature Segment 1. A limited number of disturbed surface areas supporting structures are present in this locality. The remainder of the area supports a Mojave Creosote Bush Scrub native plant community as described by Holland (1986).

The SCLA and High Desert Power Project (HDPP), along with the VVWRA water treatment facility, are the prominent developments occurring in proximity to the Proposed Project area. A small number of paved roads, along with an unpaved road network, provide vehicular access to the few houses occurring on this east bank of the Mojave River.

Two petroleum pipelines operated by Kinder Morgan Energy Partners extend from the north to the High Desert Power Plant, through the Proposed Project area. These pipelines occur just west and south of the proposed power plant site. An electrical transmission line occurs at the southern edge of the proposed power plant.

7.0 ASSESSMENT METHODS

7.1 Literature Review

Prior to conducting surveys to characterize the area potentially affected by the Proposed Project, a literature review was performed to identify special status biological resources known from the vicinity. This literature review included an analysis of the California Natural Diversity Data Base (CNDDB) per a RAREFIND Program application (CDFG 2003); an overview of the *Soil Survey of San Bernardino County, California, Mojave River Area, California* (SCS 1986); a review the California Native Plant Society's (2001) *Rare and Endangered Vascular Plants of California*; and pertinent documents from the AMEC library.

The CNDDB analysis included all elements within the Adelanto, Baldy Mesa, Helendale, Hesperia, Silverwood Lake, Victorville and Victorville, California, U.S. Geological Survey (USGS) 7.5 minute quadrangles. The AMEC library review included a review of other biological surveys from the general vicinity (i.e., RBF Consulting [2005], Tierra Madre Consultants [1992], Tom Dodson & Associates [2003 & 2005]) and species accounts incorporated into the West Mojave Plan (BLM 2005a). Scientific nomenclature for this report follows standard reference sources including:

- Holland (1986) to characterize plant communities;
- Hickman (1993) and Munz (1974) to characterize flora;
- Stebbins (1985, 2003) to characterize amphibians and reptiles;
- American Ornithologists Union (1998) to characterize birds; and
- Laudenslayer, Grenfell and Zeiner (1991) to characterize mammals.

7.2 Field Surveys

Field surveys were conducted throughout the 338 acres proposed for power plant construction. In addition, field surveys were undertaken on one adjacent 30-acre construction staging area located north of Colusa Road/west of Helendale Road; and on another adjacent 20-acre staging area located south of Colusa Road/east of Helendale Road. Approximately 185 acres of linear corridor for linear segments were surveyed, including the 77-acre impact area, were also surveyed. The total combined field survey effort encompassed approximately 573 acres (not including Zone of Influence and buffer zone surveys); with approximately 57 of these acres either currently developed or disturbed (See Appendix 1, Map 1).

7.2.1 Biological Resources and Habitat Assessment

A general biological assessment, involving a habitat condition assessment and wildlife inventory, was conducted throughout the entire Proposed Project area.

Vegetation mapping, rare plant surveys, and a delineation of federal and state jurisdictional waters were completed during these efforts (See Appendix 1, Maps 6 and 7). These surveys involved several transects spaced no more than 30 feet apart. A Zone of Influence (ZOI) assessment was similarly conducted at intervals of 100 feet; 300 feet; 600 feet; 1,000 feet; 1,200 feet; 2,400' feet and one mile from the edge of proposed surface-disturbing activities.

These assessment surveys were conducted at various dates during February through May and November through December 2006; as well as during January 2007. This work was conducted by AMEC Biologists John Green, Dave Kajtaniak, Nathan T. Moorhatch, Stephen J. Myers, Nick Ricono, Chris Rodriguez, Daryl Trumbo, and Michael D. Wilcox; and sub-consultant Biologist Ted Rado. All flora and fauna observed was recorded in field notes and are included as Appendices 4 and 5.

Observed special status biological resources were mapped using handheld Global Positioning Systems (GPS) equipment and later transferred to a geographic information system (GIS) ESRI ArcView 9.1 format (See Appendix 1, Map 8). Unknown plant species were collected for

subsequent identification by Andrew C. Sanders of the University of California at Riverside (UCR) Herbarium.

7.2.2 Focused Surveys for Desert Tortoise (*Gopherus agassizii*)

Focused Desert Tortoise surveys were conducted over the entire Proposed Project footprint in accordance with the "*Field Survey Protocol for Any Non Federal Action That May Occur within the Range of the Desert Tortoise*" (FWS 1992). A detailed overview of the Desert Tortoise survey protocol is provided in the AFC Biological Technical Report.

The portion of the proposed water reclamation pipeline alignment that would occur on land managed by the VVWRA was not surveyed, as Desert Tortoise clearance surveys have previously been completed and perimeter exclusion fencing installed (Tom Dodson Associates 2003).

Surveys were undertaken at various dates in March through May, November and December of 2006; as well as in January 2007. These surveys were conducted by AMEC Biologists John Green, Dave Kajtaniak, Nathan T. Moorhatch, Stephen J. Myers, Chris Rodriguez, and Michael D. Wilcox; and by sub-consulting Biologist Ted Rado. The Biological Technical Report in the AFC provides a table of the daily field survey data (i.e., dates, times, weather variables, etc.)

Belt transects of 30 feet in width were walked throughout the Action Area (i.e., power plant site, the two construction staging areas, all of Segment 1, areas of Segment 2 proposed for disturbance, and all of Segment 3 of the proposed electrical transmission line). Desert Tortoise sign (i.e., live tortoises, burrows, scat, carcasses and shell fragments) encountered during these belt transect efforts was documented on appropriate survey forms, photographed and mapped using handheld GPS equipment (See Appendix 1, Map 10).

Desert Woodrat (*Neotoma lepida*) middens and animal burrows were carefully inspected for presence of the species. ZOI surveys were conducted at transect intervals of 100 feet; 300 feet; 600 feet; 1,200feet; and 2,400 feet from the edge of proposed surface disturbance.

7.2.3 Focused Surveys for Mohave Ground Squirrel (*Spermophilus mohavensis*)

Surveys for the MGS were conducted in accordance with the latest MGS Survey Guidelines (guidelines), dated January 2003 (CDFG 2003b). Appendix 9 of the AFC Biological Resources Technical Report (*Focused Survey for the Mohave Ground Squirrel for the Victorville 2 Hybrid Power Project*) contains a description of these guidelines.

Focused visual and diurnal small mammal trapping grid surveys were conducted by authorized Biologists, Stephen J. Myers, Ted Rado, Ryan Young, Stephen J. Montgomery and Christine Halley. Each authorized Biologist holds a Memoranda of Understanding (MOU) with CDFG to conduct trapping surveys according to approved protocol. CDFG was consulted regarding trapping grid placement. Trapping areas included the proposed power plant site and two primary construction staging areas, as well as a portion of proposed utility feature Segment 1.

The focused visual surveys consisted of walking the proposed trapping areas prior to conducting approved small mammal trapping work. Three trapping grids, consisting of 100 traps (10 rows of 10 traps), were utilized for the proposed power plant site. Two linear grids, consisting of 100 traps (four rows of 25 traps), were utilized for the northern portion of proposed utility feature Segment 1. One trapping grid was used for each proposed construction staging area.

Sherman® live-traps of 12 inch-length were used and spaced 35 meters apart. Trapping bait consisted of a mixture of rolled oats, birdseed, and peanut butter. Each grid was trapped for a minimum of five consecutive days. In all, three 5-day trapping surveys were performed; one during each of the following periods: March 15 through April 30, May 1 through 31, and June 15 through July 15, 2006.

Traps were shaded with cardboard, opened one hour after sunrise and closed one hour before sunset. Ambient air temperatures occurring one (1) foot above the ground surface was closely monitored. Traps were closed when this temperature exceeded 90º F and remained closed until the temperature dropped below 90º F. Associated reporting forms were completed daily by the field biologists.

7.2.4 Surveys for Burrowing Owl (*Athene cunicularia*)

Focused surveys for Burrowing Owl were conducted within the proposed power plant area, the two associated construction staging areas, as well as the northern portion of proposed utility feature Segment 1. These surveys were conducted by AMEC Biologists Dave Kajtaniak, Stephen J. Myers, and Michael D. Wilcox in July through August 2006. Map 3 in Appendix 1 depicts the boundaries of the Burrowing Owl survey areas.

Survey work was conducted during early morning and late afternoon hours, in accordance with protocol established by the "*Staff Report on Burrowing Owl Mitigation* (CDFG 1995). Surveys were conducted using transects spaced 100 feet or less apart. Buffer zone transects were also conducted out to 500 feet from the edge of the survey sites. Binoculars were used to scan fences, posts, and other structures that might be used as perches by this species. Additionally, animal burrows were examined for Burrowing Owl sign (i.e. feathers, whitewash, and/or pellets). All Burrowing Owl sign and burrows suitable for Burrowing Owl nesting was mapped using handheld GPS equipment (See Appendix 1, Map 11).

8.0 AFFECTED ENVIRONMENT

8.1 California Streambeds and Federal Waters

California Streambeds are defined (Title 14, California Code of Regulations, Section 1.72) as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation".

However, for the purposes of enforcing Sections 1600-07 of the California Fish and Game Code, the term "stream" can include intermittent and ephemeral streams, rivers, creeks, dry washes, sloughs, "blue-line" streams and watercourses with subsurface flows (CDFG 1994).

As a physical system, a California streambed not only includes water on an at least intermittent or ephemeral basis, but also a bed or channel, a bank and/or levee, in-stream features and various floodplains. Biologic components may include all aquatic animals and riparian vegetation as well as amphibians, reptiles, invertebrates, and terrestrial species which derive benefits from the stream system (CDFG 1994).

Federal Waters ("Waters of the United States"), as it applies to the jurisdictional limits of the authority of the USACE under the Clean Water Act are:

1. all waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of tide;
2. All interstate waters including interstate wetlands;
3. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:
    a. Which are or could be used by interstate travelers for recreational or other purposes;
    b. From which fish or shellfish are or could be taken; or
    c. Which could be used for industrial purposes by industries in interstate commerce (33 Code of Federal Regulations Part 328, USACE 2004).

Portions of proposed utility feature Segment 1 intersect with 40 small to moderate-sized ephemeral washes, which drain eastward into the Mojave River (see Appendix 1, Map 7). Ten (10) small wash drainages were fond to occur within the area proposed for placement of utility feature Segment 2; all of which drain eastward into the Mojave River. Five (5) small wash drainages, including Oro Grande Wash, were also delineated in the area proposed for placement of utility feature Segment 3.

These washes likewise flow into the Mojave River and are thus considered tributaries to this river, at least in a 50-100 year flood event. These washes also meet established criteria for California Streambeds (CDFG 1994). Similarly, the Mojave River is considered a federal "Water of the United States" (pers. comm. Geraldo Salas, Los Angeles District Office USACE 2006).

The western edge of the Mojave River is located approximately 0.5 mile east of the eastern edge of the proposed power plant site. At its closest point, the proposed reclaimed-water supply pipeline would be located within 50 feet of the river's edge. Above-ground water flow occurs in this reach of the river, but becomes sub-surface at a short distance downstream from the Proposed Project area.

8.2 Plant Communities

Native plant communities common to upland areas of the Proposed Project include Mojave Creosote Bush Scrub, Desert Saltbush Scrub, Rabbitbrush Scrub and Mojavean Juniper Woodland and Scrub (Holland 1986). A complete list of the 116 plant species identified throughout all portions of the Proposed Project area is provided in Appendix 4.

The proposed power plant itself would be located in a Mojave Creosote Bush Scrub plant community with dominant plant species including Creosote Bush (*Larrea tridentata*), White Bursage (Ambrosia *dumosa*) and Cheesebush (*Hymenoclea salsola*). Cacti (*Opuntia* ssp.) and Joshua Tree (*Yucca brevifolia*) are sparsely scattered across this area (Appendix 1, Map 6).

Desert Saltbush Scrub, Rabbitbrush Scrub and Mojavean Juniper Woodland and Scrub plant communities occur in various portions of the Proposed Project's linear utility feature Segments 1, 2 and 3 (Appendix 1, Map 6).

The dominant plant in Desert Saltbush Scrub included Allscale (*Atriplex polycarpa*), with Four-winged Saltbush (*Atriplex canescens*), Shadscale (*Atriplex confertifolia*), Mojave Saltbush (*Atriplex spinifera*) and infrequent Joshua trees found in association. Rubber Rabbitbrush (*Chrysothamnus nauseosus*) formed nearly monotypic stands in the Rabbitbrush Scrub plant community observed. The dominant plants recorded in the Mojavean Juniper Woodland and Scrub plant communities included California Juniper (*Juniperus californica*), Rubber Rabbitbrush, Joshua tree and Nevada Joint Fir (*Ephedra nevadensis*).

In addition to the four native plant communities listed above, Non-native Grassland occurs in part of the proposed power plant area, as do disturbed and developed lands. Dominant plant species observed within these areas include Short-pod Mustard (*Hirschfeldia incana*), Checkered Fiddleneck (*Amsinckia tesselata*), Red Brome (*Bromus madritensis* ssp. *rubens*), Mediterranean Splitgrass (*Schismus barbatus*), and Storksbill (*Erodium cicutarium*).

Native plant communities associated with the proximal reach of the Mojave River include Mojave Riparian Forest, Southern Willow Scrub and Mojave Wash Scrub (Holland 1986). Gooding's Black Willow (*Salix gooddingii*), Fremont Cottonwood (*Populus fremontii*), Screwbean Mesquite (*Prosopis pubescens*), Cattails (*Typha* spp.) and Mulefat (*Baccharis salicifolia*) are but a few of the many riparian plants occurring in these plant communities. Non-vegetated sandy riverbed also occurs in this locale (Appendix 1, Map 6).

No plant species protected under the California Native Plant Act (CNPA) are known to occur within the Proposed Project area. However, six or more Joshua Trees may not be harvested or transported on public highways per the CNPA, except under a permit issued by the San Bernardino County Agricultural Commissioner. Further, Title 8 of the San Bernardino County Code requires transplantation of removed Joshua Trees. Both the Cities of Victorville and Hesperia also have local ordinances requiring permits for Joshua Tree removal.

8.3 Special Status Species

8.3.1 Summarized Results of Literature Review

The literature review identified 27 state and federally listed species, candidate species, and "Species of Concern" known to occur within a ten mile radius of the Proposed Project. These special status species included two amphibians, three reptiles, 19 birds, and three mammals.

Seven of these species are federally-listed as "Threatened" or "Endangered"; six are state listed as "Threatened" or "Endangered"; and 20 have been designated as "Special Concern Species"[1]. Twenty-nine listed, "Protected", "Special Concern" or other special status species have been reported from a ten mile-radius of the Proposed Project area (Table 1).

However, only two of the special status species listed above are known from the immediate area of the Proposed Action area (Desert Tortoise, Burrowing Owl). The Mojave Ground Squirrel is also assumed to occur; though it has not been observed or trapped in the affected area proximity to date. In addition, both the Le Conte's Thrasher and Loggerhead Shrike are considered to have a high potential of nesting within the immediate Proposed Project area, as these species were observed on portions of the site.

Four avian species are known to occasionally forage over habitats common to the Proposed Project area during both migratory and nesting seasons (Cooper's Hawk, Northern Harrier, Prairie Falcon, Golden Eagle). However, no suitable nesting habitat is present for these four bird species in the Proposed Project area.

Three species (Southwestern Pond Turtle, San Diego Coast Horned Lizard, Mojave River Vole) are considered to have a very low to low occurrence potential as suitable habitat for these species is limited to very small sites located adjacent to the Proposed Project area; with little mobility outside of these locales expected. One avian species (Gray Vireo) has a very low to low occurrence potential as its very particular migratory and nesting habitat is limited to a small portion of the Proposed Project area.

Seven avian species are known, or have the potential to utilize habitat limited to the Mojave River during nesting, migratory and breeding seasons (Southwestern Willow Flycatcher, Cooper's Hawk, Yellow Warbler, Western Yellow-billed Cuckoo, Summer Tanager, Yellow-breasted Chat, Least Bell's Vireo, and Long-eared Owl). Four species are known to utilize habitats common to the Mojave River during migratory seasons only (Bald Eagle, Swainson's Hawk, Vaux's Swift, White-faced Ibis).

[1] Several of these species were both state and federally listed.

Table 1. State and Federal Special Status Species Occurring within Ten Miles of the Proposed Project.

Species	Protective Status (F=Federal, C=California)	Habitat	Occurrence Probability
Amphibians			
Arroyo Toad *Bufo californicus*	F: Endangered C: Special Concern	High-order streams, rivers, drainages; with sandy banks/bottoms.	**Absent** (presumed extinct from Mojave River).
California Red-legged Frog *Rana (aurora) draytonii*	F: Threatened C: Special Concern	Aquatic habitats with deep pools.	**Absent** (presumed extinct from Mojave River).
Reptiles			
Desert Tortoise *Gopherus agassizi*	F: Threatened C: Threatened; Protected Reptile	Various desert habitats, Creosote bush scrub, Saltbush scrub, flats, hillsides and arroyos.	**Occurs** (Live tortoises, burrows, scat observed).
San Diego Coast Horned Lizard *Phrynosoma coronatum blainvillii*	F: none C: Special Concern	Many scrub and woodland habitats, grasslands; loose, often sandy soils.	**Low** (for southern-most portion of linear utility feature Segment 3).
Southwestern Pond Turtle *Actinemys marmorata pallida*	F: none C: Special Concern; Protected Reptile	Permanent waters in varied habitats. Some burrowing occurs away from wetlands.	**Low** (known to occur at VVWRA Treatment Plant ponds and within adjacent Mojave River).
Birds			
Bald Eagle *Haliaeetus leucocephalus*	F: Threatened (proposed to be delisted); Bald Eagle Protection Act (BEPA) C: Endangered; Protected Raptor	Nests in coniferous forests and on cliff faces. Winters at deep inland lakes and reservoirs; often migrates along stream corridors.	Nesting: **Absent**. Foraging: **Low** (occurs in adjacent Mojave River during migration).
Burrowing Owl *Athene cunicularia*	F: Bird of Conservation Concern (BCC); MBTA C: Protected Raptor	Nests in burrows made by other animals and burrow-like structures adjacent to grasslands, scrub habitats, urban and agricultural areas.	Nesting: **Occurs** (observed within 300' of Proposed Action. Foraging: **Occurs**.
Cooper's Hawk *Accipter cooperii*	F: Migratory Bird Treaty Act (MBTA) C: Special Concern (nesting only)	Nests in riparian woodlands and forests; forages in a variety of habitats, usually in proximity to riparian habitats.	Nesting: **Absent** (habitat lacking), known from Mojave River. Foraging: **Occurs**.

Table 1. State and Federal Special Status Species Occurring within Ten Miles of the Proposed Project. (continued)

Species	Protective Status (F=Federal, C=California)	Habitat	Occurrence Probability
Golden Eagle *Aquila chrysaetos*	F: BEPA, BCC, MBTA C: Protected Raptor	Nests in coniferous forests/cliff faces. Forages in open country and desert scrub.	Nesting: **Absent**. Foraging: **Occurs**.
Gray Vireo *Vireo vicinior*	F: MBTA C: Special Concern	Occurs in pinyon-juniper woodland, Mojave Juniper Scrub, chamise and redshank chaparral.	Nesting: **Low** Foraging: **Low** (see above).
Least Bell's Vireo *Vireo bellii pusillus*	F: Endangered (nesting); MBTA C: Endangered (nesting)	Requires willow riparian woodlands for nesting and foraging.	Nesting: **Absent** (habitat lacking); known to nest in Mojave River. Foraging: **Low**.
Le Conte's Thrasher *Toxostoma lecontei*	F: BCC; MBTA C: Special Concern	Uses a variety of arid habitats, often in open, sparsely vegetated areas; often nests in cactus.	Nesting: **Moderate**. Foraging: **Occurs.**
Loggerhead Shrike *Lanius ludovicianus*	F: MBTA C: Special Concern	Nests in open habitats with small trees or large shrubs, desert scrub; winters in open habitats.	Nesting: **High**. Foraging: **Occurs**.
Long-eared Owl *Asio otus*	F: MBTA C: Special Concern	Riparian habitats, live oak stands, mesquite and desert willow thickets for nesting.	Nesting: **Absent** (habitat lacking), may nest in Mojave River. Foraging: **Low**.
Northern Harrier *Circus cyaneus*	F: MBTA C: Special Concern (nesting only); Protected Raptor	Nests in marshes; forages over grasslands and desert scrub.	Nesting: **Absent** (habitat lacking), may nest in Mojave River. Foraging: **Occurs**.
Osprey *Pandion haliaetus*	F: MBTA C: Special Concern; Protected Raptor	Nests and forages in wetlands and open water; migrates along stream corridors.	Nesting: **Absent** (habitat lacking). Foraging: **Low** (occurs in adjacent Mojave River during migration).
Prairie Falcon *Falco mexicanus*	F: BCC, MBTA C: Special Concern (nesting only); Protected Raptor	Nests in cliffs; forages over open terrain, desert scrub, agricultural areas.	Nesting: **Absent**. Foraging: **Occurs**.

Table 1. State and Federal Special Status Species Occurring within Ten Miles of the Proposed Project. (continued)

Species	Protective Status (F=Federal, C=California)	Habitat	Occurrence Probability
Southwestern Willow Flycatcher *Empidonax trailii extimus*	F: Endangered (subspecies); MBTA C: Endangered (full species)	Nests and forages in riparian woodlands; often migrates along stream corridors.	Nesting: **Absent** (habitat lacking; migrates and may nest in adjacent Mojave River). Foraging: **Low**.
Summer Tanager *Piranga rubra*	F: MBTA C: Special Concern (nesting only)	Nests and forages in mature riparian forest and woodland.	Nesting: **Absent** (habitat lacking), may nest in adjacent Mojave River. Foraging: **Low.**
Swainson's Hawk *Buteo swainsoni*	F: BCC; MBTA C: Threatened (nesting only); Protected Raptor	Grasslands, plains, agricultural areas. Nests in tall trees (including Joshua trees) near waterways.	Nesting: **Absent** (not observed). Foraging: **Low** (known to forage in adjacent Mojave River during migration only).
Tricolored Blackbird *Agelaius tricolor*	F: MBTA C: Special Concern	Marshes for nesting; forages in fields and scrub habitats.	Nesting: **Absent** (habitat lacking). Foraging: **Absent**.
Vaux's Swift *Chaetura vauxi*	F: MBTA C: special concern (nesting only)	Nests in tree trunks; forages over openings in forest and along stream courses.	Nesting: **Absent** (out of breeding range). Foraging: **Occurs** (during migration).
Western Yellow-billed Cuckoo *Coccyzus americanus occidentalis*	F: MBTA; Migratory Nongame Bird of Management Concern C: Endangered	Nests in cottonwood-willow forest; known to nest at Kern River, Prado Basin, Colorado River.	Nesting: **Absent** (habitat lacking); may nest in adjacent Mojave River. Foraging: **Very Low** (habitat lacking).
White-faced Ibis *Plegadis chihi*	F: MBTA C: Special Concern	Occurs in freshwater marsh with dense emergent vegetation for breeding.	Nesting: **Absent** (habitat lacking). Foraging: **Low** (migrates along Mojave River).
Yellow Warbler *Dendroica petechia*	F: MBTA C: Special Concern (nesting only)	Nests in riparian forest and woodland; nests along Mojave River, Santa Ana River, Kern River, and many others in southern California.	Nesting: **Absent** (habitat lacking); nests in adjacent Mojave River. Foraging: **Low** (nests in Mojave River).

Table 1. State and Federal Special Status Species Occurring within Ten Miles of the Proposed Project. (continued)

Species	Protective Status (F=Federal, C=California)	Habitat	Occurrence Probability
Yellow-breasted Chat *Icteria virens*	F: MBTA C: Special Concern (nesting only)	Occurs in Riparian Forest and woodland.	Nesting: **Absent** (habitat lacking), nests in Mojave River. Foraging: **Low.**
Mammals			
Mohave Ground Squirrel *Spermophilus mohavensis*	F: none C: Threatened	Creosote Bush Scrub, Saltbush Scrub, and Grasslands.	**Assumed Present in Proposed Project area**. Focused surveys negative to date.
Mojave River Vole *Microtus californicus mohavensis*	F: none C: Special Concern	Damp bottomland of the Mojave River.	**Very Low** (habitat lacking); occurs in adjacent Mojave River.
Pallid San Diego Pocket Mouse *Chaetodipus fallax pallidus*	F: none C: Special Concern	Occurs in washes, desert scrub, Pinyon-Juniper Woodlands.	**Unknown**.

KEY TO TABLE 1

F: Federal (Endangered, Threatened, Candidate, Migratory Bird Treaty Act [MBTA])
C: California (Endangered, Threatened, Protected, Special Concern, California Fish and Game Code [F&G Code])

United States Bird Conservation (USBC): Watch List:
This list includes the Partners in Flight (PIF) Watch List, the United States Shorebird Conservation Plan Watch List, and the Waterbird Conservation for the Americas Watch List. This combined watch list is available through the American Bird Conservancy at: **http://www.abcbirds.org/watchlist/index.htm**. Information on Partners in Flight is available at: **http://www.partnersinflight.org/**. Information on the United States Shorebird Conservation Plan is available at: **http://shorebirdplan.fws.gov/.** Information on the North American Waterbird Conservation Plan is available at: **http://www.pwrc.usgs.gov/nacwcp/testarea/nacwcp/pubs/continentalplan.cfm.**

American Bird Conservancy (ABC): Green List:
The American Bird Conservancy Green List contains all the highest priority birds for conservation in the continental United States and Canada. It builds on the species assessments conducted for many years by Partners in Flight (PIF) for land birds and expands it to include shorebirds, waterbirds and waterfowl. The list is available at: **http://www.abcbirds.org/greenlist.htm** .

Definitions of occurrence probability:

Occurs: Observed on the site by AMEC biologists, or recorded on-site by other qualified biologists.
High: Observed in similar habitat in region by qualified biologists, or habitat on the site is a type often utilized by the species and the site is within the known range of the species.
Moderate: Reported sightings in surrounding region, or site is within the known range of the species and habitat on the site is a type occasionally used by the species.
Low: Site is within the known range of the species but habitat on the site is rarely occupied by the species.
Absent: A focused study failed to detect the species, no suitable habitat is present, or the location is outside the species range
Unknown: Distribution and habitat use has not been clearly determined.

The occurrence likelihood of the Pallid San Diego Pocket Mouse is unknown, but remains possible due to a previously recorded location in proximity to the Proposed Project area. Three other species (Arroyo Toad, California Red-legged Frog, Tricolored Blackbird) are considered absent from the Proposed Project area, due to the extirpation of the species or to a lack of suitable nesting/migratory habitat. These latter three species are included in Table 3 below, but will not be addressed further in this document.

Project-specific data relative to these species is briefly outlined below. Detailed information on each of the species listed above can be found in the AFC Biological Technical Report.

8.3.2 Special Status Species Accounts

8.3.3 Desert Tortoise (*Gopherus agassizii*)

The Mojave population of the Desert Tortoise in California is state and federally listed as "Threatened". This species is known to utilize Creosote Bush Scrub, Saltbush Scrub, Joshua Tree Woodland and Mixed Mojave Scrub plant communities; as well as a variety of terrain types, including alluvial fans, valleys, rocky hillsides and washes. The latter terrain appears to provide habitat crucial to this species for foraging in dry years and in social pursuits.

Burrows are typically located at or near the base of shrubs, in caliche soil bank areas or underneath boulders/rocks. Desert Tortoises are known to utilize an average of 7-12 burrows at any given time (BLM 2005), with more than one animal known to share a single burrow on occasion. Home range size varies, with sex, age, season, population density or availability of resources (FWS 1994); but is generally between 10-450 acres.

Primary threats to the species include habitat loss and degradation; communicable disease and contaminants; Common Raven (*Corvus corax*), domestic dog and other animal predation on young Desert Tortoises; as well as transportation corridors and vehicle use. Poaching, vandalism and wildfire are also considered substantial threats to Desert Tortoise populations and habitats, respectfully. In addition to the outright loss of considerable Desert Tortoise habitat associated with relatively recent urban/residential development in the Mojave Desert, expanding off-road vehicle use, past livestock grazing and military training maneuvers, as well as increasing wildfire, have degraded suitable habitat for the species over large areas.

Mycoplasmosis, a highly contagious respiratory tract disease, has caused severe population crashes in portions of the West Mojave Desert. *Mycoplasma agassizzi*, the organism thought responsible for virulent strains of this disease, precipitates several secondary disease conditions which often bring about Desert Tortoise death.

Food and nesting substrate subsidization benefitting the Common Raven has also resulted in low Desert Tortoise population recruitment in many localized areas of the West Mojave Desert.

Focused Desert Tortoise (*Gopherus agassizii*) Surveys

Desert Tortoises were found throughout portions of the Proposed Project area (Appendix 1, Map 10). Two live animals were identified within the proposed disturbance footprint of the Proposed Project area and four Desert Tortoises were observed within the adjacent ZOI. Thirty-nine Desert Tortoise burrows, 29 scat and five carcasses (four adults and one hatchling), were recorded in the Proposed Project area and adjacent ZOI. The majority of the Proposed Project area is considered suitable habitat for the species.

In addition, eight live Desert Tortoises were reported (Tom Dodson Associates 2003) as occurring in the area addressed in the SCLA Specific Plan Amendment and Rail Service Project and within the VVWRA facility which overlaps a portion of the Proposed Project area.

No evidence of Common Raven predation within the Proposed Project area was observed. Live tortoises observed did not exhibit any obvious signs of disease (i.e., discharge, swollen eyes). However, blood samples of each animal would need to be analyzed in order to determine if these animals test positive for disease antibodies.

Adjacent BLM-managed public land has been designated Category III Desert Tortoise Habitat with an estimated 1984 density of 0 to 20 Desert Tortoises per square mile (BLM 2005). Photographs of representative habitat and species' sign observed in the Proposed Project area are presented in Appendix 2 of the AFC Biological Technical Report. Completed survey data forms are presented in Appendix 6 of the AFC Biological Technical Report.

8.3.4 Burrowing Owl (*Athene cunicularia*)

This diurnal to crepuscular raptor is currently designated a CSC species by the CDFG and managed as a Bird of Conservation Concern (BCC) by the FWS. This species is associated with grasslands and other arid open terrain, including Creosote Bush Scrub, in much of the western United States.

Burrowing Owls are opportunistic in their selection of burrows, typically utilizing the burrows of small mammals (e.g., kit fox), but also use Desert Tortoise burrows, drain pipes, culverts, and other suitable cavities at or below ground level. Due to the characteristic fossorial habits of Burrowing Owls, nest burrows are a critical component of their habitat.

In southern California, Burrowing Owls are not only found in undisturbed natural areas, but also fallow agricultural fields, margins of active agricultural areas, livestock farms, airports, and vacant lots. In spite of their apparent tolerance to human activities, Burrowing Owl populations in California are clearly declining (CDFG 1995). The declines in burrowing owl populations are attributed to loss and degradation of habitat; ongoing residential and commercial development; and to rodent control programs.

Focused Burrowing Owl (*Athene cunicularia*) Surveys

As depicted in Appendix 1, Map 11, evidence of the species (i.e., burrows exhibiting whitewash, feathers, pellets, etc.) in addition to live Burrowing Owls, were observed throughout portions of the Proposed Project area.

The species was also observed within the Proposed Project's 500-feet buffer zone; as well as within the 2,400-feet ZOI focused survey work conducted for other species (i.e., Mohave Ground Squirrel and Desert Tortoise). At least four live Burrowing Owls were observed occupying separate burrow locations in and around the Proposed Project area during these surveys.

One individual was recorded 900 feet northwest of the ZOI encompassing the northwest corner of the proposed western construction staging area. Another was recorded in the buffer zone of utility feature Segment 1, approximately 300 feet southwest of the ROW. The two other Burrowing Owls were observed within an area of utility feature Segment 2.

One of these birds was located outside the existing transmission line corridor, approximately 120 feet away from one of the proposed transmission line stringing/pulling areas. The other was located within the existing transmission corridor, approximately 220 feet away from the centerline of the proposed new transmission line.

Although most of these Burrowing Owls were observed outside the Proposed Project disturbance footprint, three were found within the 500-foot buffer zone area as defined by the "*Burrowing Owl Consortium Survey Guidelines*". One Burrowing Owl carcass/remains was also recorded within proposed utility feature Segment 1.

At least forty (40) small mammal burrows, thirty-six (36) Kit Fox (*Vulpes macrotis*) colony burrows, and thirty-nine (39) Desert Tortoise burrows were observed within the Proposed Project area and ZOI. These burrows provide substantial Burrowing Owl nesting opportunity and many exhibit sign of the species' previous use.

8.3.5 Mohave Ground Squirrel (*Spermophilus mohavensis*)

State listed as "Threatened", the Mohave Ground Squirrel is restricted to the western Mojave Desert. The species historically occurred from near Palmdale on the southwest, to Lucerne Valley in the southeast; northwest to Olancha, and northeast to the Avawatz Mountains (Gustafson 1993). There are a few recent records of the species occurring in the southern portion of its range encompassing Palmdale-Victorville. However, a juvenile of the species was captured in the Victorville area in July 2005. Urbanization and other degradation impacts to its desert habitats have led to its (probable) near-extirpation from substantial portions of the Victor Valley.

Mohave Ground Squirrels are active only seasonally, spending much of the year in torpidity underground; emerging to feed following winter and spring rains. It feeds on the leaves and seeds of forbs and shrubs, with perennial shrubs forming a large part of the diet, especially

when annual forbs are not available. Plant communities used by the species include Mojave Creosote Bush Scrub, Saltbush Scrub and Joshua Tree Woodland. Washes and relatively flat terrain appear to be preferred, but Mohave Ground Squirrel has also been documented to occur on gentle to moderate slopes.

The species has been recorded as occurring on or near the proposed southern laydown/staging area in 1987 (CNDDB 2006). Two visual sightings of Mohave Ground Squirrel were also reported in 2003 from the vicinity, perhaps even on the overlapping portion of the Proposed Project area, by Biologists conducting surveys for the SCLA Specific Plan Amendment and Rail Service Project (Tom Dodson Associates 2004). In 2004, the species was captured two miles west-southwest of the Proposed Project area (S. Montgomery pers. comm.; T. Moore pers. comm.), adjacent to U.S. Highway 395.

The CNDDB (CDFG 2006) also provides other locality records for Mohave Ground Squirrel occurring in proximity to proposed utility feature Segments 2 and 3 (Appendix 1, Map 4).

Focused Mohave Ground Squirrel (*Spermophilus mohavensis*) Surveys

No Mohave Ground Squirrels were captured or observed within the Proposed Project area during focused surveys conducted in 2006. However, only the proposed power plant site, two adjacent construction staging areas, and a portion of utility feature Segment 1 were trapped at this time. The remainder of utility feature Segment 1, as well as utility feature Segments 2 and 3 were not surveyed or trapped. As noted earlier, the Project proponent has elected to assume presence of the species within the Proposed Action area.

8.3.6 Le Conte's Thrasher (*Toxostoma lecontei*)

This uncommon to rare resident of desert scrub habitats has been designated a CSC species by the CDFG. Within the West Mojave Desert, Le Conte's Thrasher is known to occur in the Antelope Valley north to eastern Kern County. In the southern portion of the West Mojave Desert, the species occurs throughout Joshua Tree National Park and west along the northern bases of the San Bernardino and San Gabriel Mountains.

Open desert with scattered shrubs and sandy and/or alkaline soil are preferred by the Le Conte's Thrasher. Creosote Bush Scrub and Joshua Tree Woodland plant communities are favored by this species in the western Mojave Desert. The species' nests are typically placed in a cactus, thorny shrub, or small tree; selected to offer protection from predators and the sun.

At least two Le Conte's Thrashers were observed in two locations along proposed utility feature Segment 1 (see Appendix 1, Map 8). Suitable nesting habitat is present throughout much of the Proposed Project area. This species was also reported in the immediate vicinity of the proposed power plant area, during biological field survey work for the SCLA Specific Plan Amendment and Rail Service Project EIR (Tom Dodson & Associates 2003).

8.3.7 Loggerhead Shrike (*Lanius ludovicianus*)

This species has been designated a CSC species by the CDFG and a BCC by the FWS. It is a highly voracious predator of insects and small vertebrates. Loggerhead Shrikes nest in trees and shrubs throughout most of the U.S. and portions of southern Canada.

It has declined throughout much of its range, particularly in Canada, as well as the Gulf States and Midwest. A variety of factors have impacted this species, including habitat loss and pesticide use in breeding and wintering habitats.

Creosote Bush Scrub and Joshua Tree Woodland plant communities are favored by the species within the western Mojave Desert. Joshua Trees are occasionally used as nesting substrate. Populations occupying inland southern California areas appear to be relatively stable despite declines documented elsewhere in the nation.

Loggerhead Shrikes were observed within the Proposed Project area by AMEC biologists on several occasions throughout the spring and summer months. As the species appears to be resident within the Proposed Project area and suitable nesting substrate occurs throughout the Proposed Project area, nesting is considered likely.

8.3.8 Cooper's Hawk (*Accipiter cooperi*)

This migratory species is a Protected raptor in California and has been designated a CSC species by the CDFG. The Breeding Bird Survey conducted between 1980 and 1996 documented an approximate 7.5% decline in this species statewide (Stephenson and Calcarone 1999).

Cooper's Hawk typically nests in wooded areas, often near streams. The species primarily preys on smaller bird species. It typically forages over open and residential landscapes located adjacent to stream courses.

The species was observed flying over the Proposed Project area on several occasions during biological surveys.

Although suitable nesting habitat is not present within the Proposed Project area, this species is known to nest in the adjacent Mojave River riparian habitat. Cooper's Hawk populations are known to increase in the Victor Valley in winter months when migratory birds arrive from northerly latitudes. A corresponding increase in bird foraging within uplands occurring adjacent to the Mojave River is expected to occur during this season.

8.3.9 Northern Harrier (*Circus cyaneus*)

This low-flying raptor commonly known from marshes, has been designated a CSC species by the CDFG and is protected by the State of California. Like most of the nations' migratory birds, it is federally protected under the MBTA. The species generally seeks low perches and seldom

soars high except during migration and during their acrobatic courtship displays. Males of the species are known to migrate later in the fall and earlier in the spring, than females.

Prey includes small mammals and amphibians. Nesting habitat generally supports dense emergent vegetation. Foraging in Creosote Bush Scrub habitats located adjacent to stream courses is common during both the nesting and migration seasons.

8.3.10 Prairie Falcon (*Falco mexicanus*)

As a migratory bird species commonly known from dry open country, Prairie Falcons are also afforded federal protection under the MBTA. This CSC species is also a state-protected raptor. Small numbers of the species winter throughout the breeding range.

It preys on birds and small mammals, which are often glimpsed from the wing while soaring.

Cliff faces are required for nesting purposes; where high nest fidelity is exhibited. Foraging habitat includes Creosote Bush Scrub plant communities and foothill areas.

8.3.11 Golden Eagle (*Aquila chrysaetos*)

A migratory bird species, Golden Eagles are afforded federal protection under the MBTA and are federally protected under the Bald Eagle Protection Act (BEPA) of 1940. This species is also a CSC species designated by CDFG and is a state-protected raptor.

This large soaring bird of open country and forests preys on small mammals, rabbits (*Lepus* spp.), snakes, birds and carrion. Cliffs and/or large coniferous trees are required for nesting. Foraging habitat includes Creosote Bush Scrub plant communities and foothill areas.

8.3.12 Southwestern Pond Turtle (*Actinemys marmorata pallida*)

This cryptic reptile of wetland habitats has been designated a species of special concern by the CDFG and is a Protected species in California.

Historically, the Southwestern Pond Turtle occurred in a wide variety of permanent and intermittent aquatic habitats within southern California. Currently, it occurs in greatly reduced numbers within this range, or is completely extirpated. Reasons for the species' decline include various water diversion projects; grazing; vehicle related mortality; vandalism; predation; loss, degradation and fragmentation of wetland/immediately adjacent upland habitats; exploitation by the pet trade, and drought (FWS 1993).

The Southwestern Pond Turtle is found in ponds, lakes, marshes, vernal/ephemeral pools, sinkhole ponds, rivers, streams, estuaries, and saltwater; as well as woodland, grassland, and open forest habitats (Holland 1991, Zeiner et. al 1988, Stebbins 1985). In addition, the species may also be found in watercourses altered by humans such as irrigation ditches, canals, reservoirs, excavated farm ponds, mill ponds, and sewage treatment plants (Holland 1991).

These "human-modified" aquatic habitats are usually in close proximity to natural watercourses where the turtles occur. Aquatic habitats favored by the Southwestern Pond Turtle usually contain Watercress (*Rorippa* spp.), Cattail, Waterlily (*Nymphaea* spp.), and other aquatic vegetation.

Basking sites in close proximity to water which providing quick, easy escape from predators and aiding in thermoregulation, are an essential habitat requirement of the species. Basking sites commonly used include partially submerged logs, rocks, cattail mats, mud banks, wooden planks, or other human-generated debris (Stebbins 1985, Holland 1991). In addition to the presence of basking sites, an open canopy (i.e. areas with few trees and little shade) is generally preferred. This allows for maximum basking opportunities to aid in thermoregulation.

Adults can travel, burrow, lay eggs and overwinter in upland areas situated in proximity to wetland sites. Hatchling and juveniles require more specialized habitats, such as shallow water/wetbanks with dense vegetation (e.g. Reeds [*Juncus* spp.], Sedges [*Carex* spp.], Cattail, and Tules [*Scirpus* spp.]) which offers cover from predators such as fishes, bullfrogs, snakes, wading birds, and mammals (Holland 1991, Federal Register 1993, Ziener et. al 1988).

The Southwestern Pond Turtle has been reported from several locations along the Mojave River (CDFG 2006). This includes one 2004 record from "*a waste water treatment plant 0.7 miles west of Highway 18, 6 miles north-northwest of Victorville*".

This record places the species at the VVWRA treatment plant, presumably within one of the sewer treatment ponds. This locality is situated immediately adjacent to where a portion of utility feature Segment 1 (i.e., reclaimed water pipeline) is proposed for installation (see Appendix 1, Maps 2 and 4).

No focused surveys for the Southwestern Pond Turtle were conducted for the Proposed Project. The reclaimed water pipeline proposed for installation would be located entirely within a compacted perimeter access road situated outside the immediate VVWRA sewage pond area.

8.3.13 San Diego Coast Horned Lizard (*Phrynosoma coronatum blainvillii*)

This cryptic lizard has been designated a CSC species. Populations are declining due to loss, degradation and fragmentation of suitable habitat, extensive collecting, and introduction of the Argentine Ant (*Linepithema humile* [formerly *Iridomyrmex humilis*]), which can out-compete native Harvester Ant species (*Pogonomyrmex* sp.) eaten by Horned Lizards.

The species occurs throughout southern California, west of the desert interior and Cascade-Sierran highlands, ranging south through Baja California, Mexico (Stebbins 1985). Its range extends from sea level to about 1,800 m. (6,000 ft.) in southern California Mountains (Zeiner et. al 1988). The San Diego Coast Horned Lizard is found in a variety of habitats including coastal sage scrub, chaparral, broad-leaved woodlands, washes, grasslands as well as within Pinyon Juniper plant communities. Habitat requirements include the presence of Harvester Ants (the

species primary diet); loose sandy soil where it buries itself; cover (rocks or brush) to escape from predators; and sunny/warm basking sites (Stebbins 1985, Sherbrooke 1981).

Although not observed during general biological surveys, one record for the species places it 0.5 miles west of Oro Grande Railroad Station; located approximately one mile south of a portion of the Proposed Project area. The West Mojave Plan species account states that this population is considered extirpated (Jennings and Hayes, 1994).

Typically, the species is associated with cismontane habitats. Populations are known from the Mojave Desert along the base of the San Gabriel and San Bernardino Mountains, the Antelope Valley California Poppy State Reserve and Joshua Tree National Park (Jennings and Hayes 1994). The species has been recorded from the vicinity of the southern-most portions of proposed utility feature Segment 3 (see Appendix 1, Map 4).

8.3.14 Mojave River Vole (*Microtus californicus mohavensis*)

This small mammal is managed as a CSC by the CDFG. This subspecies of the California Vole (*Microtus californicus*) is restricted in range to the Mojave River between Victorville/Apple Valley and Helendale. Its habitat is the moist, grassy understory of associated riparian woodlands, freshwater marsh, meadows, as well as irrigated pastures located in proximity.

The Mojave River Vole feeds on grasses, green vegetation and roots. This species was not observed during general biological surveys. There is a very low to low potential for occurrence in a very limited portion of utility feature Segment 1 (see Appendix 1, Map 4).

8.3.15 Gray Vireo (*Vireo vicinior*)

This uncommon, undergrowth vireo has been designated a CSC species by the CDFG. It is a local, summer resident in arid Pinyon-Juniper Woodland and Chamise Redshank Chaparral plant communities (Holland 1986). The species has been reported from 2000-6500 feet in mountains of the eastern Mojave Desert; on the northeastern slopes of the San Bernardino Mountains; as well as the San Jacinto Mountains; and Laguna Mountains.

The Gray Vireo was not observed within the Proposed Project area during general biological surveys. Focused surveys, however, were not conducted for this species. There is a very low to low potential for this species to nest in the Juniper Woodland and Scrub plant community occurring in the southern portion of proposed utility feature Segment 3.

8.3.16 Yellow Warbler (*Dendroica petechia*)

The Yellow Warbler, while nesting, has been designated as a CSC species. It is also federally protected under the MBTA. This species is typically found in riparian habitats during avian nesting season, where it seeks out insects and some berries. During migration, it routinely visits woodlands, forests, and shrub habitats (CDFG 2005).

The species was not observed during any biological surveys, nor is there requisite nesting habitat for this species within the Proposed Project area. Suitable habitat for this species does occur in the adjacent Mojave River and there is a potential for it to travel through the Proposed Project area during foraging/migration.

8.3.17 Summer Tanager (*Piranga rubra*)

An insectivorous, neotropical migrant, this species has also been designated a CSC species. It resides in densely vegetated thickets and is most commonly associated with riparian plant communities in southern California. Summer Tanagers typically perch on the highest treetops and eat primarily flying insects, which it catches on the wing, and to a lesser extent, fruit.

The Mojave River provides extensive nesting habitat for this species. Summer Tanagers are thought to be declining due to habitat loss, primarily associated with deforestation and urban development.

The species was not observed within the Proposed Project Area. Although suitable habitat for this species occurs in the adjacent Mojave River, no suitable nesting, foraging or migratory use habitat exists in the Proposed Project area.

8.3.18 Yellow-breasted Chat (*Icteria virens*)

An insectivorous, neotropical migrant, this member of the Warbler Family has been designated a CSC species. It resides in densely vegetated thickets and is most commonly associated with riparian plant communities in southern California. Yellow-breasted Chat is declining due to brood parasitism by Brown-headed Cowbirds (*Molothrus ater*) as well as habitat loss, primarily associated with deforestation and urban development.

The species nests fairly commonly along the Mojave River from Victorville to Helendale (as many as 25 nesting pairs, S. Myers pers. comm.). Although suitable habitat for this species occurs in the adjacent Mojave River, no suitable nesting, foraging or migratory use habitat exists in the Proposed Project area.

8.3.19 Least Bell's Vireo (*Vireo bellii pusillus*)

This species is state and federally listed as "Endangered". It forages, nests and migrates in willow and/or mulefat-dominated riparian scrub habitats along permanent or nearly permanent streams (Grinnell and Miller 1944, Goldwasser 1978, Franzreb 1987, Garrett and Dunn 1981).

Least Bells Vireo was formerly widespread and common throughout low-lying riparian habitats in southern California, but is now restricted to a limited number of locations. Nest parasitism by the Brown-headed Cowbird and habitat loss has contributed to this species' significant population declines. Critical habitat has been designated for the species, which is located approximately 26 miles south of the Proposed Action area.

Least Bells Vireo was not observed in the Proposed Project area during biological field surveys, nor is it expected to occur. Although suitable habitat for this species occurs in the adjacent Mojave River, no suitable nesting, foraging or migratory use habitat exists in the Proposed Project area.

8.3.20 Long-eared Owl (*Asio otus*)

As a migratory bird species commonly known from dry open country, Long-eared Owls are also afforded federal protection under the MBTA. This CSC species is also a state-protected raptor.

The generally silent owl species inhabits thick woods and hunts rodents, amphibians, reptiles, fish and insects at night over open fields. By day it roosts in a tree, usually close to the trunk. Long-eared Owls are known to utilize Desert Willow (*Chilopsis linearis*), Mesquite (*Prosopis* spp.) and thick Willow (*Salix* spp.) growths in the Mojave River vicinity. It is also known from washes in the vicinity which support dense vegetation thickets. The species uses abandoned nests of other species to raise their young. Flocks, which often winter in Mexico, sometimes roost together.

8.3.21 Bald Eagle (*Haliaeetus leucocephalus*)

A state listed-Endangered and federally listed-Threatened species, Bald Eagles are afforded high levels of state and federal protection. Proposed for federal status delisting, Bald Eagles are also protected under the BEPA and MBTA.

The species inhabits riverine, lacustrine and coastal habitats, where they eat primarily fish and carrion. The species builds large stick nests in trees (usually coniferous), with high nest fidelity exhibited. Migration flight often follows interior river corridors.

Bald Eagles often follow the Mojave River corridor in their migratory flight. The species is known to winter at Silverwood and Big Bear Lake near the headwaters of the Mojave River. However, the Proposed Project area does not afford any nesting habitat and only very limited foraging opportunity for migrating Bald Eagles.

8.3.22 Swainson's Hawk (*Buteo swainsoni*)

State listed as "Threatened" in California, the Swainson's Hawk is also federally protected under the MBTA. This soaring hawk often migrates with flocks of Turkey Vultures (*Cathartes aura*) along the Mojave River.

The species is known from savannas, prairies, deserts, open pine-oak woodlands and cultivated lands with scattered trees. It feeds on rabbits, lizards, frogs, toads, snakes and birds.

Occasionally the species is also known to feed heavily on insects, particularly in its South American Pampas wintering grounds. Swainson's Hawks are threatened with habitat loss, pesticide poisoning and shooting.

Swainson's Hawks build large twig nests in trees and sometimes on cliffs. The species exhibits moderate site fidelity, but even minor nest disturbance can cause nest desertion. It is thought to have once nested in the Mojave Desert. However, the species is currently believed only to migrate through the Mojave River region.

8.3.23 Osprey (*Pandion haliaetus*)

The Osprey is a state-protected raptor and has been designated a CSC species. As such, it is afforded protection under California Fish and Game Code Sections 3503, 3503.5, 3513, and 3800. Federally, this migratory species is protected under the MBTA.

Ospreys inhabit riverine, lacustrine and coastal habitats, where they eat primarily fish. The species builds large stick nests in trees (usually coniferous), rock outcrops, on high cliffs and on human structures; with high nest fidelity exhibited. Migration flight often follows interior river corridors.

Ospreys were observed flying over the Mojave River and adjacent VVWRA facility on several occasions during general biological surveys. In the Victor Valley, this species is known as an uncommon migrant. The Proposed Project area does not afford any nesting or foraging opportunities for the species.

8.3.24 Vaux's Swift (*Chaetura vauxi*)

Designated a CSC species, the Vaux's Swift is also federally protected under the MBTA. The species is known to winter from Central Mexico south to Venezuela. The species inhabits woodlands near lakes and rivers, where it feeds on flying insects. It nests in hollow tees and occasionally in chimneys. Post-breeding flocks, with birds sometime numbering in the hundreds, commonly roost together in chimneys. The species is considered fairly rare in southern California.

8.3.25 Southwestern Willow Flycatcher (*Empidonax trailii extimus*)

This species is state and federally listed as Endangered. It similarly forages, nests and migrates in willow-dominated riparian scrub habitats along permanent or nearly permanent streams.

This subspecies of the Willow Flycatcher (*E. t. trailii*) was formerly considered a common summer resident in southern California's lowland willow thickets (Grinnell and Miller 1944). Nest parasitism by the Brown-headed Cowbird and habitat loss has contributed to this species' significant population declines (Garrett and Dunn 1981).

Critical habitat has been designated for the species. The Mojave Management Unit of this critical habitat is located within the Mojave River within approximately 150 feet of portions of proposed utility feature Segments 1 and 2 (Appendix 1, Map 12).

The Southwestern Willow Flycatcher was not observed in the Proposed Project area during biological field surveys, nor is it expected to occur. Although suitable habitat for this species occurs in the adjacent Mojave River, no suitable nesting, foraging or migratory use habitat exists in the Proposed Project area.

8.3.26 Western Yellow-billed Cuckoo (*Coccyzus americanus occidentalis*)

An insectivorous, neotropical migrant, this species is state listed as "Endangered" and a candidate for federal listing west of the Rocky Mountains. While it is relatively common east of the Rocky Mountains, there is concern for loss/degradation of dense riparian habitat suitable for Western Yellow-billed Cuckoo's use in the West.

The species is known to require large riparian habitat blocks fro nesting. It is often found in Cottonwood (*Populus fremontii*)/Gooding's Black Willlow (*Salix gooddingii*) riparian galleries, where it feeds on insects (particularly caterpillars), bird eggs, frogs, lizards and fruit. Dense understory foliage appears to be an important nest habitat feature for this species.

There is a 1978 record of this species from the Mojave River, approximately 11 miles southeast of the Proposed Project area (CNDDB 2006). The species appears to have been detected in the same area several times throughout the late 1980s and early 1990s (S. Myers pers. comm.).

The Western Yellow-billed Cuckoo was not observed in the Proposed Project area during biological field surveys, nor is it expected to occur. Although marginally suitable habitat for this species occurs in the adjacent Mojave River, no suitable nesting, foraging or migratory use habitat exists in the Proposed Project area.

8.3.27 White-faced Ibis (*Plegadis chihi*)

A wading bird of fresh emergent wetland, shallow lacustrine waters, wet meadows, and irrigated croplands, this species has been designated as a CSC species by the CDFG. White-faced Ibis nest in densely-vegetated, emergent freshwater wetlands where it feeds on insects and small vertebrates. The White-faced Ibis has ceased nesting in many areas where it once did, likely as a result of marsh loss in the state (CDFG 2005).

The species was not observed on, or in the vicinity of the Proposed Project, during any of the biological field surveys conducted for the Proposed Project. However, White-faced Ibis has been reported from the Mojave River during biological field surveys conducted for the SCLA Specific Plan Amendment and Rail Service Project EIR (Tom Dodson Associates 2003).

Although suitable habitat for this species occurs in the adjacent Mojave River, no nesting, foraging and migratory flight habitat for this species is present within the Proposed Action area.

8.3.28 Pallid San Diego Pocket Mouse (*Chaetodipus fallax pallidus*)

This small mammal has been designated a CSC species, but little is known of its natural history. The species is thought to be associated with open, weedy sand areas of the low desert and foothills in the Lower/Upper Sonoran life zone of southwestern California (Ingles 1965).

The Pallid San Diego Pocket Mouse occurs primarily on the margins of the western Mojave Desert and the northern slopes of the San Bernardino and San Gabriel Mountains. A record from nearby Oro Grande appears in the literature (Hall 1981, CNDDB 2006). Comprehensive nocturnal trapping to detect this species was not performed for the Proposed Project.

9.0 ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED PROJECT

9.1 Temporary and Permanent Impacts

Implementation of the Proposed Project would directly impact 408 acres of native plant communities (Creosote Bush Scrub, Saltbush Scrub, and Mojavean Juniper Woodland and Scrub) that are considered suitable habitat for the Desert Tortoise, Mohave Ground Squirrel, Burrowing Owl, Le Conte's Thrasher, and Loggerhead Shrike. A portion of this habitat is known to be occupied by small numbers of Desert Tortoise.

Some of this acreage has been assumed by the Proposed Project proponent as occupied by unknown numbers of the Mohave Ground Squirrel, although no Mohave Ground Squirrels have been sighted or trapped in the Proposed Project area.

In addition, this habitat is thought to be used periodically by small numbers of Burrowing Owl, Le Conte's Thrasher and Loggerhead Shrike.

The habitat of these species would be temporarily impacted in some areas and permanently lost in some areas, as the result of the Proposed Project. Habitat impacts would include the removal of native soils and vegetation, as a result of Proposed Project site grading, construction (i.e., power plant, transmission line towers, and pipelines), and equipment staging/storage. A number of Joshua Trees would be lost if not transplanted. Due to the lengthy time period required for unassisted and/or facilitated habitat revegetation to meet pre-disturbance values in the West Mojave Desert, temporary plant community impacts are considered similar to permanent plant community impacts in this analysis.

Fifty-four (54) acres of disturbed/developed land and three acres of Non-native Grassland would also be temporarily affected or permanently removed. However, this acreage is considered to be of low habitat value for the Desert Tortoise, Mohave Ground Squirrel, Burrowing Owl, Le Conte's Thrasher and Loggerhead Shrike.

The amount of each plant community and disturbed habitat that would be directly affected within the Proposed Project area is presented in Tables 2 and 3 below. Use of heavy equipment, operation of motorized vehicles, and other surface disturbance associated with the

Table 2. Temporary Impacts per Affected Plant Community and Proposed Project Component.

Vegetation Community	Power Plant Site	West Staging Area	South Staging Area	Linear Utility Feature Segments			TOTAL
				1	2	3	
Creosote Bush Scrub	0 acres	0 acres	0 acres	9 acres	2.2 acres	31.8 acres	43 acres
Saltbush Scrub	0 acres	0 acres	0 acres	0.2 acres	0 acres	0 acres	0.2 acres
Pinyon-Juniper Woodland	0 acres	0 acres	0 acres	0 acres	0 acres	23.2 acres	23.2 acres
Non-native Grassland	0 acres	0 acres	0 acres	0 acres	0 acres	0 acres	0 acres
Rabbitbrush Scrub	0 acres	0 acres	0 acres	0 acres	0 acres	0 acres	0 acres
Disturbed/developed areas	0 acres	0 acres	0 acres	0 acres	0 acres	0 acres	0 acres
Total	0 acres	0 acres	0 acres	9.2 acres	2.2 acres	55 acres	66.4 acres

Table 3. Permanent Impacts per Affected Plant Community and Proposed Project Component.

Vegetation Community	Power Plant Site	West Staging Area	South Staging Area	Linear Utility Feature Segments			TOTAL
				1	2	3	
Creosote Bush Scrub	285 acres	30 acres	20 acres	6.7 acres	0.13 acres	0.13 acres	341.96 acres
Saltbush Scrub	0 acres	0 acres	0 acres	<0.01 acres	0 acres	0 acres	<0.01 acres
Pinyon-Juniper Woodland	0 acres	0 acres	0 acres	0 acres	0 acres	0.17 acres	0.17 acres
Non-native Grassland	3 acres	0 acres	0 acres	0 acres	0 acres	0 acres	3 acres
Rabbitbrush Scrub	0 acres	0 acres	0 acres	0 acres	0 acres	0 acres	0 acres
Disturbed/developed areas	50 acres	0 acres	0 acres	3.6 acres	0 acres	0 acres	53.6 acres
Total	338 acres	30 acres	20 acres	10.31 acres	0.13 acres	0.3 acres	398.74 acres

Proposed Project has the potential for incidental take of Desert Tortoises, Mohave Ground Squirrels (if present), Burrowing Owls, Le Conte's Thrasher/Loggerhead Shrike/Gray Vireo nestlings, as well as other migratory bird nestlings. This incidental take, i.e., animal harassment, harm or mortality, could result from general surface disturbance (e.g., earth

movement, vegetation removal), heavy machinery operation, vehicle collisions with undetected animals and/or the crushing of animals within occupied burrows.

Various activities, such as heavy equipment operation and vehicle use, also have the potential to generate disturbance offsite, adjacent to the Proposed Project area during the initial construction phase. Some bird species may abandon nests if nearby noise levels are excessive.

Dust generated by construction activities has the potential to drift off the Proposed Project site and settle on adjacent vegetation, potentially impacting plant reproduction and overall habitat suitability for certain wildlife species, including the Desert Tortoise and Mohave Ground Squirrel. This offsite impact is considered a potential direct effect of the Proposed Action, but is difficult to quantify.

In general, initial Proposed Project construction activities would result in the temporary reduction of wildlife use on adjacent lands, as the result of construction dust, lighting and noise. Wildlife use of these adjacent lands would be expected to return to pre-construction levels following the completion of proposed construction activities.

Increased traffic on access roads associated with the Proposed Project both during the initial construction phase and during routine operations and maintenance poses the potential for increased vehicle-related wildlife mortality. This impact enhances food provisioning opportunities for the Common Raven and other potential predators of the Desert Tortoise, Mojave Ground Squirrel, and Burrowing Owl.

The temporary/permanent loss of approximately 408 acres of Desert Tortoise habitat and the potential "take" of a federally listed animal (Desert Tortoise) constitutes a "may affect" determination of effect with regard to the ESA. As such, ESA Section 7 consultation and incidental take authorization are required. The temporary/permanent loss of this same 408 acres supporting Mohave Ground Squirrel habitat and the potential "take" of state-listed animals (Desert Tortoise and Mohave Ground Squirrel), also necessitates CESA Section 2081 incidental take permitting.

The removal of two to six Desert Tortoises from harms way during the Proposed Project is considered likely, as two adult animals were documented within the footprint of the Proposed Project area and four additional Desert Tortoises were observed adjacent to this locality. Other hatchling and/or juvenile Desert Tortoises could also be found during clearance surveys of the affected property, which would necessitate additional incidental take authorization to remove these animals from harms way. All Desert Tortoises onsite would require handling and translocation to a pre-determined offsite location approved by involved regulatory agencies.

An unknown number of Mohave Ground Squirrels (if present) and Burrowing Owls may similarly need to be removed from harms way during the Proposed Project, to avoid direct impacts potentially resulting in mortality of individual animals. While techniques exist to determine occupancy of burrows with regard to Burrowing Owl, it is more difficult to ascertain with complete certainty relative to Mohave Ground Squirrel.

As the Arroyo Toad is considered extirpated from the Mojave River and no impacts are anticipated in this locality, no effects to this federally listed amphibian species are anticipated as the result of the Proposed Project.

Likewise, as the California Red-legged Frog is considered extirpated from the Mojave River, no effects to this federally listed species are anticipated.

The federally listed-Threatened/state listed Endangered Bald Eagle, which migrates in small numbers along the Mojave River, is also unlikely to be affected by the Proposed Project. Similarly, no effects to the state listed-Threatened Swainson's Hawk, which also migrates along the Mojave River, are anticipated.

No effects to the federally listed-Endangered Southwestern Willow Flycatcher are anticipated. The species has not been reported as nesting from the immediate Mojave River area and no surface disturbance would occur in the Mojave River riparian habitat. Further, the species' migration travels are likely to remain in this immediate river corridor.

However, the habitat characteristics of this proximal Mojave River reach for the state and federally listed-Endangered Least Bell's Vireo and state listed-Endangered Western Yellow-billed Cuckoo are considered fair for species' nesting purposes. Least Bell's Vireo has also been reported as nesting a short distance upstream from this river locale, and Western Yellow-billed Cuckoos are known from a downstream location. While no habitat disturbance in this river habitat would occur as the result of the Proposed Project, there is a low potential for construction-related noise disturbance to affect this species along a small portion of the proposed utility feature Segment 1. Migratory use impacts are unlikely.

Accordingly, there is a low likelihood that the Proposed Project may affect, but is not likely to adversely affect, the state/federally listed-Endangered Least Bell's Vireo; and the state listed-Endangered Western Yellow-billed Cuckoo.

Direct impacts to other bird species potentially nesting within the adjacent Mojave River (i.e., Yellow Warbler, Summer Tanager, Cooper's Hawk, Long-eared Owl, etc.) could also occur as the result of proposed construction activities, as portions of proposed utility feature Segment 1 are located in close proximity. Although this potential consequence is considered extremely low, if loud noise (i.e., heavy equipment operation associated with proposed utility feature Segment 1 installation) were to occur during the nesting season (February 15 through August 31), a small potential for nest disturbance impact in occupied avian habitat does exist. Avoidance of construction activities within the areas in close proximity to the Mojave River riparian zone would result in a no affect determination. If avoidance of the nesting season cannot be achieved, close biological monitoring of affected habitats during noise-generating construction activities could, however, detect this potential impact in time to remedy adverse effects to bird nesting.

No effects to migratory travel by White-faced Ibis, Osprey or Vaux's Swift, Burrowing Owls, Le Conte's Thrasher, Loggerhead Shrike or Gray Vireo are anticipated as the result of the Proposed Project. Similarly, there is a very low likelihood of impacts to Mojave River Vole as

the result of the Proposed Project, since no suitable habitat for the species would be impacted and mobility of this species outside of moist bottomlands is very rare.

A slightly higher potential for impacts to the Southwestern Pond Turtle exists relative to installation of a water pipeline in proposed utility feature Segment 1. Terrestrial travel by this native turtle is known to occur and consequently, proposed pipeline installation activities and vehicle travel in proximity to the VVWRA ponds has the potential to result in crushing mortality of this species. Close biological monitoring of affected habitats during these construction activities and vehicle travel could, however, detect this potential impact in time to avoid species injury/mortality.

A small potential for impacts to San Diego Coast Horned Lizard and Pallid San Diego Pocket Mouse also exists relative to portions of the Proposed Project area. Pre-disturbance clearance of areas where heavy equipment construction would be used could minimize the severity of this impact relative to San Diego Coast Horned Lizards, but is unlikely to successfully mitigate potential impacts to sub-surface-dwelling Pallid San Diego Pocket Mice.

9.2 Indirect Impacts

In addition to outright vegetation removal in some portions of the Proposed Project area, the operation of heavy equipment and vehicle use may also indirectly affect the Desert Tortoise, possibly Mojave Ground Squirrel (if present), Le Conte's Thrasher, San Diego Coast Horned Lizard and possibly San Diego Pocket Mouse habitat in a variety of ways. These vehicle use/equipment operation indirect impacts include the potential modification of soil-water uptake ability and drainage patterns near washes. Vehicle use and equipment parking/staging could also contribute to the alteration of plant species composition adjacent to existing/planned roads and staging areas used in the proposed Project. A resulting change of annual plant surface cover could reduce the value of these species' habitat in some areas.

The introduction of noxious and/or non-native plant species also sometimes occurs along roadsides. These non-native plants often provide little or reduced nutritional value to native herbivores and can out-compete native plants in some situations. Thus, an increase in area roads and/or vehicle use could potentially increase the chance of non-native plant introduction and/or spread.

Over time, some non-native plants can spread from these roadsides, out-compete valuable native forage and reduce habitat values at a distance from the affected roadway. Non-native grass species, when established, can also alter natural wildfire regimes by increasing fuel connectivity and/or ladder fuel loads, influencing wildfire severity and periodicity. Although no recent wildfire evidence was observed in the area, a high potential for wildfire in the region was noted in the several wildlife surveys undertaken for the Proposed Project. Any creation of potential wildfire sources, fuel storage and/or increases in human presence within the area as a result of structure attraction, would add to the general threat of wildfire ignition in the affected area.

Project operations are anticipated to generate varying levels of dust, lighting and ambient noise adjacent to the proposed power plant. Periodic maintenance and operation of proposed utility features are also expected to generate small degrees of dust, lighting and ambient noise.

Potential indirect impacts to habitats located adjacent to the Proposed Project could also occur if onsite drainage or fluid discharge occurs as a result of inadequate controls or containment. Improperly directed precipitation drainage could similarly result in eroded soils and sedimentation. Such impacts can sometimes adversely affect offsite vegetation, water courses and even the underlying water aquifer. Appropriate facility drainage and storm-water containment design, as well as planning for miscellaneous fluid discharge, can reduce the severity of these potential indirect impacts.

New structures associated with the Proposed Project (i.e., transmission line towers, tall buildings, cooling towers) could indirectly create nesting/perching/shading habitat favorable to the Common Raven; a known predator of hatchling and juvenile Desert Tortoises.

These structures may also create other perching and nesting opportunities for other raptors as well; which could potentially prey upon Mohave Ground Squirrels, Burrowing Owls, Le Conte's Thrashers and/or Loggerhead Shrike. Further, proposed Project operations are likely to produce varying levels of trash or other food items which could subsidize and/or attract scavengers like the Common Raven and Coyote (*Canis latrans*). Such scavenger provisioning/attraction could indirectly increase the predation rate upon the above species.

9.3 Cumulative Impacts

Impacts associated with the Proposed Project, when considered individually, may not be considered significant. However, when considered collectively with other past, present, and future actions in the region, impacts of the Proposed Project may contribute incrementally to the loss of occupied/suitable habitat or individual special-status species.

The Cities of Victorville and adjacent Adelanto, like many other areas of the western Mojave Desert, are currently experiencing rapid development and growth. For example, the development of a 1,600-acre intermodal railway logistics facility located at the SCLA is being planned that would involve the conversion of considerable undeveloped acreage to developed lands in the immediate VV2 Project vicinity. Extensive housing has recently been constructed to the east and south of the Proposed Project area and this rapid development is continuing.

The expansion and possible relocation of portions of U.S. Highway 395, located east of the Proposed Project area, are also currently being planned. Public lands occurring to the north of the Proposed Project area have been identified as disposal acreage to facilitate Land Tenure Adjustment objectives associated with long-term bioregional planning. These lands, once placed into private ownership, are anticipated to be developed. Across the Mojave River from the Proposed Project area in the town of Ore Grande, the TXI Cement Plant is also currently conducting extensive retrofitting and expansion.

Due to the high levels of human activity in the area, habitat loss, degradation, and fragmentation were considered significant issues in the BLM's recently adopted West Mojave Plan, a long-term bioregional planning document. The VV2 Project would contribute to the ongoing conversion of undeveloped lands to developed acreage in this region and thus reduce the amount of available habitat for a number of special-status species, including the Desert Tortoise, Mohave Ground Squirrel and Burrowing Owl. The loss of this onsite habitat would be fully mitigated, however, according to regulatory agency guidelines and conform to the long-term biological reserve design identified in the West Mojave Plan.

10.0 PROPOSED IMPACT MINIMIZATION AND MITIGATION

10.1 Conservation Measures

To minimize anticipated special status species' impacts, several conservation measures have been incorporated into the Proposed Project. These include:

- The completion of pre-construction and 100%-clearance surveys for Desert Tortoise in accordance with "*Procedures for Endangered Species Act Compliance for the Mojave Desert Tortoise*" (FWS 1992). All resulting cleared areas would be either fenced or closely monitored by qualified biologists to preclude Desert Tortoise re-entry into these construction areas.

- The translocation of all Desert Tortoises found within the disturbance footprint of the Proposed Project to suitable offsite habitat. This translocation would be completed by Authorized Biologists as allowed for in the corresponding Biological Opinion incidental take statement issued by the FWS. All translocation would be completed in accordance with a project-specific translocation plan to agency-approved acreage and in accordance with FWS and CDFG handling protocol.

- The completion of 30-day pre-construction and 100%-clearance Burrowing Owl surveys by qualified biologists, in accordance with CDFG guidelines. Suitable but confirmed-unoccupied burrows occurring within these cleared areas would be collapsed to prevent Burrowing Owl use of these construction areas. Resulting protection recommendations prescribed as an outcome of these surveys would also be implemented prior to any ground or vegetation disturbance taking place within the Proposed Project area.

- The relocation of all Burrowing Owls found within the disturbance footprint of the Proposed Project to suitable offsite habitat. This relocation, if necessary, would be conducted by qualified biologists possessing a requisite Memoranda of Understanding (MOU) with the CDFG to conduct such action. All relocation would be to agency-approved acreage and in accordance with CDFG-approved handling guidelines.

- Concurrent with the Desert Tortoise and Burrowing Owl pre-construction surveys, visual surveys for Mojave Ground Squirrel will also be conducted (if the surveys are

conducted at the appropriate time of year). If Mojave Ground Squirrels are detected on or near the site at that time, CDFG will be notified immediately.

- The completion of all construction activities in that portion of the Proposed Project area located immediately adjacent to Mojave River riparian habitat (i.e., reclaimed water pipeline within proposed utility feature Segment 1) outside the primary nesting season for riparian-nesting bird species (i.e., February 15 through August 31).

- The employment of qualified Biological Resource Monitors to assist with minimizing resource damage during construction. These monitors would be required to ensure compliance with FWS- and CDFG-issued Conditions of Approval, mitigation measures, and Proposed Project permits.

- The monitoring of all Proposed Project surface-disturbing actions in undisturbed lands. Each piece of heavy equipment simultaneously traversing habitat in the Project area would be assigned a Biological Resource Monitor. Regulatory approval compliance reports would be submitted to the agencies overseeing the Proposed Project on a regular basis.

- The presentation of an environmental awareness training course to all Proposed Project personnel prior conducting onsite work. These personnel would be required to sign and date an attendance sheet confirming this training was completed.

- Compensation for the loss of habitat suitable for the Desert Tortoise, MGS and Burrowing Owl impacted by the Proposed Project. The specific amount of compensation acreage to be acquired and managed would be determined in negotiations with, and approved by, FWS and CDFG. The location of these compensation lands would conform generally to the long-term conservation design specified in the bioregional West Mojave Plan. An implementation agreement with a mitigation banking and conservation land management entity approved by FWS and CDFG would be finalized to ensure appropriate compensation habitat was acquired and managed over the long-term for the benefit of the Desert Tortoise, MGS and Burrowing Owl.

10.2 General Impact Minimization Measures

The following general measures are proposed to minimize potential adverse impacts to the Desert Tortoise, MGS, Burrowing Owl, Le Conte's Thrasher, Loggerhead Shrike, Southwestern Pond Turtle, San Diego Coast Horned lizard, Southwestern Willow Flycatcher, Least Bell's Vireo, Western Yellow-billed Cuckoo and migrating/nesting avian species occurring in the vicinity of the Proposed Project area. Implementation of these measures would substantially reduce the potential for direct impacts to these species, as well as minimize adverse impacts to native vegetation and general wildlife of the affected area.

1) All Proposed Project construction, operation, maintenance and/or termination actions

would comply with applicable state and federal laws.

2) All work activities would be restricted to specifically-approved and clearly marked areas.

3) A Field Contact Representative (FCR) would be designated to oversee and be responsible for compliance with conditions of Proposed Project approval. This FCR would be easily accessible during all project activities and would have the authority to halt all project activities that are in violation of Proposed Project approval conditions.

4) Only water or gravel placement would be employed to control fugitive dust emissions. Construction and maintenance vehicles would observe a 15-mile per hour speed limit on all unpaved roads in the Proposed Project area to reduce fugitive dust emissions.

5) Prior to mobilization of construction activities on site, all vehicles and equipment would be inspected to ensure these vehicles and equipment are operating correctly and free of fluid leaks. Equipment would be inspected daily to make sure that there are no fluid discharges.

6) All personnel working during the construction, operation or maintenance of the Proposed Project would be required to attend an Environmental Awareness and Project Approval Compliance Training. This training would be presented by a qualified biologist familiar with the Desert Tortoise, Mohave Ground Squirrel, Burrowing Owl, and other special-status species with potential to occur within the Proposed Project area.

7) A fact sheet summarizing the life histories and legal status' (including the definition and penalties for "take," and the terms and conditions of all permits) of the Desert Tortoise, Mohave Ground Squirrel, and Burrowing Owl would be provided to all Project personnel upon Environmental Awareness Training attendance. The fact sheet would also describe the protocol for reporting the death, injury, or harassment of the special status species listed above.

8) The Environmental Awareness Training would advise all employees, contractors, and subcontractors regarding the methods for minimizing the potential "take" of Desert Tortoise, Mohave Ground Squirrel, and Burrowing Owl (i.e. checking under all vehicles before moving them, complying with delineated construction limits, and minimizing surface disturbance). Personnel working onsite would also be briefed on appropriate protocol to follow in reporting and cleaning up all potentially hazardous material such as petroleum and radiator fluid spills, as well as procedures to follow in reporting wildfire sightings and/or motorists stranded in the immediate vicinity of the Proposed Project.

10.3 Surface Disturbance Revegetation

Upon completion of proposed power plant construction, the adjacent 50 acres used for proposed construction staging/laydown areas would be revegetated. In addition, all Joshua Trees occurring within the surface disturbance footprint of all areas of the Proposed Project

would be transplanted into appropriate habitat along the perimeter of the proposed power plant; into the proposed construction staging areas; or other identified locations within the Proposed Project area. Further, following the proposed construction of new transmission line towers (275) and installation of the two water pipelines, revegetation of all related construction staging/assembly areas would be completed.

All revegetation would be conducted according to a Proposed Project-specific Surface Disturbance Revegetation Plan prepared subject to applicable agency approvals. Techniques used in these revegetation efforts would be detailed in this proposed plan and are anticipated to include the following methods: 1) "vertical mulching", entailing the placement of previously salvaged shrubs, cacti, Joshua Trees and rocks/vegetative debris into areas where the soil has been disturbed; 2) the raking out of vehicle tracks; and 3) broadcasting of hand-collected, native seed stock from the immediate vicinity of the Proposed Project area.

All proposed revegetation efforts would be monitored by a qualified biologist to minimize impacts upon special status species potentially occurring in the vicinity of the Proposed Project. The establishment of planted vegetation and stabilization progress of "vertical mulching" material placement would be monitored at a time period specified in the Surface Disturbance Revegetation Plan.

10.4 Desert Tortoise (*Gopherus agassizii*) Mitigation Measures

The following mitigation measures are commonly applied in activities with the potential to affect the Desert Tortoise. Each measure has been modified to most aptly apply to the Proposed Project and collectively, have been designed to fully mitigate adverse impacts to this species.

1) The designated FCR would oversee and be responsible for compliance with conditions of Project approval. This FCR would be on site or easily accessible during all project activities and would have the authority to halt all project activities that are in violation of conditions of Project approval.

2) In accordance with "*Procedures for Endangered Species Act Compliance for the Mojave Desert Tortoise*" (FWS 1992), an Authorized Desert Tortoise Biologist (Authorized Biologist) should possess a bachelor's degree in biology, ecology, wildlife biology, herpetology, or closely related fields.

   The Authorized Biologist must have demonstrated prior field experience using accepted resource agency techniques to survey for Desert Tortoises and their sign. As a guideline, an Authorized Biologist should have 60 field days of experience. In addition, the biologist shall have the ability to recognize and accurately record survey results.

3) Construction and maintenance personnel in non-Desert Tortoise exclusion fenced areas would be required to inspect for the species under vehicles prior to moving the vehicle. If a Desert Tortoise is found beneath a vehicle, it would not be moved until the desert tortoise had left of its own accord. All Desert Tortoise observations would

be reported to the Authorized Biologist, and subsequently, to the FCR.

4) If a Desert Tortoise is in imminent danger with immediate death or injury likely (such as from an approaching vehicle or equipment), and the affected animal has been given the opportunity to move but has withdrawn in its shell and is not moving, an approved authorized biologist or environmental monitor may capture the Desert Tortoise and place it in a clean cardboard box or similar container.

5) Upon locating or receiving a report of a dead/injured Desert Tortoise in the Proposed Project Area, the FCR or appointed agent would be required to immediately notify the local CDFG and FWS representatives.

6) All burrows found during clearance surveys, whether occupied or vacant, would be excavated by the Authorized Biologist and collapsed or blocked to prevent Desert Tortoise re-entry. All burrows would be excavated with hand tools to allow removal of Desert Tortoises or their eggs. All Desert Tortoise handling/excavations, including nests, would be conducted by the Authorized Biologist in accordance with FWS-approved protocol (Desert Tortoise Council 1999).

7) All Desert Tortoises and their eggs within long-term impact areas would be relocated offsite 300 feet to 2 miles into adjacent undisturbed habitat. Tortoises found above ground would be placed under a bush in the shade. A Desert Tortoise located in a burrow would be placed in an existing unoccupied burrow of the same size and orientation as the one from which it was taken. If a suitable natural burrow is unavailable or the occupancy status of the burrow is in question, the Authorized Biologist would construct one of the same size/orientation as the one from which it was removed, using the protocol for burrow construction in Section B-5-f (Desert Tortoise Council 1999).

8) Any Desert Tortoise found within one hour of nightfall would be placed in a separate clean cardboard box and held in a cool, predator-free location. The box would be covered and kept upright at all times to minimize stress to the tortoise. Each box would be used only once and then disposed of properly. The Desert Tortoise would be released the next day in the same area from which it was collected and using the procedures described above.

9) Each Desert Tortoise would be handled with new disposable latex gloves. After use, the gloves would be properly discarded and a fresh set used for each subsequent tortoise handling.

10) The Authorized Biologist would be onsite during the periods when Desert Tortoises are expected to be active, to ensure construction activities are in compliance with an issued biological opinion and to ensure that any Desert Tortoises wandering on to the construction site via unfenced areas would not be inadvertently harmed.

11) The Authorized Biologist would be responsible for : (a) enforcing a litter-control

program; (b) ensuring that desert tortoise exclusion fences are maintained where applicable; (c) ensuring that Desert Tortoise habitat disturbance is restricted to authorized areas; (d) ensuring that all equipment and materials were stored within the boundaries of previously disturbed areas; (e) ensuring that all vehicles associated with construction activities remain within the proposed construction zones; and (f) ensuring compliance with the terms and conditions of the issued biological opinion.

12) Desert Tortoises would be handled according to FWS-approved protocol (Desert Tortoise Council 1999).

13) Desert Tortoises would be treated in a manner to ensure that they do not overheat, exhibit signs of overheating (e.g., gaping, foaming at the mouth, etc.), or are placed in a situation where they can not maintain surface and core temperatures necessary to their well-being.

14) Desert Tortoises would be kept shaded at all times until it is safe to release them.

15) No Desert Tortoise would be captured, moved, transported, or purposely caused to leave its burrow for whatever reason when the ambient temperature is above 95°F (35°C). Ambient air temperature would be measured in the shade, protected from the wind, at a height of 2 inches (5 cm) above the ground surface.

    If the ambient air temperature exceeds 95°F (35°C) during handling or processing, Desert Tortoises would be kept shaded in an environment that does not exceed 95°F (35°C), and the animals would not be released until ambient air temperature declines to below 95°F (35°C).

16) Project activities that might endanger a Desert Tortoise would cease if the species is found in an active work area. Project activities could resume after the Authorized Biologist removed the Desert Tortoise from danger of after the animal had moved to a safe area on its own volition.

17) Any Common Raven nesting incidence encountered during construction, operation or maintenance of the Project would be reported to the appropriate authorities. The integrity of this resource would be maintained pending subsequent investigation and direction by these authorities. Common Raven nest removal from proposed facilities, when determined necessary in consultation with the FWS, would occur during the inactive nesting season.

10.5 Mohave Ground Squirrel (*Spermophilus mohavensis*) Mitigation Measures

The following mitigation measures are commonly applied in activities with the potential to affect the MGS. Each measure has been modified to most aptly apply to the Proposed Project and collectively, have been designed to fully mitigate adverse impacts to this species.

1) Before initiating ground-disturbing activities, a representative (Designated

Representative) responsible for communications with the CDFG and for overseeing compliance with an acquired CESA Incidental Take Permit would be designated. The CDFG would be notified in writing prior to commencement of ground-disturbing activities of the representative's name, business address, and telephone number, and would be notified in writing if a substitute representative is designated.

2) Before initiating ground-disturbing activities, a biologist (Designated Biologist) knowledgeable and experienced in the biology and natural history of the Covered Species would be designated to monitor construction activities in areas of Mohave Ground Squirrel habitat to help avoid the take of individual animals and to minimize habitat disturbance. The CDFG would be notified in writing prior commencement of ground-disturbing activities of the Designated Biologist's name, business address, and telephone number. The Designated Biologist would be subject to the approval by the CDFG.

3) Similar to the desert tortoise awareness training, an orientation program for all project personnel who will work on-site during project implementation and construction would be prepared and presented. The program would consist of a brief presentation from the Designated Biologist. It would include a discussion of the biology of the Mohave Ground Squirrel, the habitat needs of these species, their status under the California ESA, and the management measures provided in the associated incidental take permit. A fact sheet containing this information would also be prepared and distributed to personnel working onsite. Upon completion of the orientation, employees would sign a form stating that they attended the program and understand all protection measures. These forms would then be filed at City of Victorville offices, to be made available to the CDFG upon request.

4) A trash abatement program would be initiated during pre-construction phases of The Project, and would continue through the duration of the Project. Trash and food items would be contained in closed (common raven-proof) containers and removed regularly (at least once a week) to avoid attracting opportunistic predators such as ravens, coyotes, and feral dogs.

5) The CDFG would be notified relative to compliance with all pre-construction Conditions of Approval before any ground-disturbing activities are initiated. Compliance inspections would be conducted at least once a week during construction activities to assess compliance with all construction-phase impact minimization and mitigation measures, especially those requiring creation and maintenance of exclusion zones.

6) Every month for the duration of construction activities, the CDFG would be provided with a written Compliance Report to communicate observations made during compliance monitoring, as well as all other relevant information obtained by monitoring personnel.

7) An Annual Status Report would be provided to the CDFG no later than January 31st of

every year, beginning with issuance of the CESA incidental take permit and continuing for the life of the Project.

Each Status Report would include, at a minimum: 1) a general description of the status of the project, including actual or projected completion dates, if known; 2) a copy of this table with notes showing the current implementation status of each mitigation measure; and 3) an assessment of the effectiveness of each mitigation measure in minimizing Project impacts.

8) The CDFG would be immediately notified in writing if any of the mitigation measures specified in the CESA incidental take permit were not implemented during the period indicated for their application.

9) All observations of Mohave Ground Squirrel and their sign during Project activities would be conveyed to the Designated Representative or Biologist. This information would be included in monthly compliance reports to the CDFG.

10) The Designated Biologist would have authority to immediately stop any activity that is not in compliance with the issued CESA incidental take permit, and to order any reasonable measure to avoid the take of Mohave Ground Squirrel.

11) Work personnel would access the Project area using existing routes and would not cross Mohave Ground Squirrel habitat outside of the Project area. To the extent possible, previously disturbed areas within the Project area would be used for temporary storage areas, material laydown sites, and any other surface-disturbing activities. If construction of offsite routes of travel would be required, the CDFG would be contacted prior to carrying out such an activity.

12) Any fuel or hazardous waste leaks or spills would be stopped and repaired immediately, as well as cleaned up at the time of occurrence.

The storage and handling of hazardous materials would be excluded from the construction zone and any unused or leftover hazardous products would be properly disposed of offsite.

13) All Project-related parking and equipment storage would be confined to the Project area. Off-site Mohave Ground Squirrel habitat would not be used for parking or equipment storage. Project-related vehicle traffic would be restricted to established roads, staging, and parking areas. Signs or posting stakes, flags, and/or rope, cord or fencing would be installed as necessary to minimize the disturbance of Mohave Ground Squirrel habitat. Vehicle speeds would not exceed 20 mph in order to avoid Mohave Ground Squirrels potentially on roads or traveling through the Project area.

14) If a Mohave Ground Squirrel was found in a burrow during Project-related activities, it would be immediately relocated to a burrow at a protected off-site location approved by the CDFG's Regional Representative. The Mohave Ground Squirrel would only be

relocated by a qualified biologist to a relocation burrow prepared according to CDFG guidelines.

15) If a Mohave Ground Squirrel was injured as a result of Project-related activities, it would be immediately taken to a CDFG-approved wildlife rehabilitation facility. Any costs associated with the care or treatment of such injured Mohave Ground Squirrels would be borne by the Project. The CDFG would be notified immediately unless the incident occurred outside of normal business hours. In that event the CDFG would be notified no later than 12:00 noon on the next business day. Notification to the CDFG would be via telephone or email, followed by a written incident report.

16) Agency notification of take would include the date, time, location and circumstances of the incident, and the name of the facility to which the animal was taken.

17) If a Mohave Ground Squirrel was killed by project-related activities during construction, or if a Mohave Ground Squirrel was otherwise found dead, a written report would be sent to the CDFG within two (2) calendar days. The report would include the date, time of the finding or incident, location of the carcass, and the circumstances.

18) To remedy a violation of issued incidental take permit conditions (including but not limited to failure to comply with reporting, monitoring, or habitat acquisition obligations) or to prevent the illegal take of an endangered, threatened, or candidate species, any stop-work order issued by the CDFG would be complied with immediately upon receipt thereof.

19) Upon Project construction completion, all associated refuse, including, but not limited to, broken equipment, wrapping material, cords, cables, strapping, buckets, metal or plastic containers, and boxes would be removed from the site and properly disposed of.

20) No later than 45 days after completion of the Project construction activities, including completion of all mitigation measures, a Final Mitigation Report would be provided to the CDFG. This report would be prepared by the Designated Biologist and would include, at a minimum: 1) a table with notes showing when each of the incidental take permit mitigation measures was implemented; 2) all available information about project-related incidental take of species named in the incidental take permit; 3) information about other Project impacts on the Mohave Ground Squirrel; 4) construction dates; 5) an assessment of the effectiveness of each mitigation measure in minimizing Project impacts; 6) recommendations on how mitigation measures might be changed to more effectively minimize and mitigate the impacts of future projects on the Mohave Ground Squirrel.

10.6 Burrowing Owl (*Athene cunicularia*) Mitigation Measures

The following mitigation measures are commonly applied in activities with the potential to affect the Burrowing Owl. Each measure has been modified to most aptly apply to the Proposed Project and collectively, have been designed to fully mitigate adverse impacts to this species.

1) Occupied burrows would not be disturbed during the nesting season (February 1 through August 31) unless a qualified biologist approved by the CDFG verifies through non-invasive methods that either: (1) the birds have not begun egg-laying and incubation; or (2) that juveniles from the occupied burrows are foraging independently and are capable of independent survival.

2) A buffer zone of 75 meters around an active nest should be established, appropriately flagged and monitored by a qualified biologist.

3) When destruction of occupied burrows is unavoidable, existing unsuitable burrows would be enhanced (enlarged or cleared of debris) or new burrows created (by installing artificial burrows) at a ratio of 2:1 on the protected lands site.

4) If Burrowing Owls must be moved away from the disturbance area, passive relocation techniques would be used rather than actual avian trapping. At least one or more weeks would be necessary to accomplish this and allow the birds to acclimate to alternate burrows.

5) The Project would provide funding for long-term management and monitoring of the protected lands acquired for Burrowing Owl impacts. This monitoring would include an annual report submittal to the CDFG.

10.7 Southwestern Pond Turtle (*Actinemys marmorata pallida*) Mitigation Measures

The following mitigation measures are commonly applied in activities with the potential to affect the Southwestern Pond Turtle. Each measure has been modified to most aptly apply to the Proposed Project and collectively, have been designed to fully mitigate adverse impacts to this species.

1) Before initiating ground-disturbing activities or vehicle travel in the vicinity of the VVWRA ponds, a qualified biologist would survey existing roads to ensure individual Southwestern Pond Turtles would not be at risk from vehicle or equipment use. At-risk animals would be moved to adjacent habitat, out of harms way.

2) All construction-related activities in the area along the VVWRA treatment ponds would be confined to existing perimeter roads. Treatment ponds, their embankments, and any and all plant communities in this specific area would be avoided during proposed water pipeline installation.

3) A biological resources monitor familiar with the Southwestern Pond Turtle would be present for all activities involving operation of heavy equipment or ground disturbance in this area. The monitor would conduct daily clearance surveys along the pertinent work areas to further ensure individual Southwestern Pond Turtles would not be impacted. At-risk animals would be moved to adjacent habitat, out of harms way.

10.8 San Diego Coast Horned Lizard (*Phrynosoma coronatum blainvillii*) Mitigation Measures

The following mitigation measures are commonly applied in activities with the potential to affect the San Diego Coast Horned Lizard. Each measure has been modified to most aptly apply to the Proposed Project and collectively, have been designed to fully mitigate adverse impacts to this species.

1) Before initiating ground-disturbing activities or vehicle travel in the vicinity of suitable sparse vegetation habitat potentially occupied by this species, a qualified biologist would survey existing roads to ensure individual San Diego Coast Horned Lizards would not be at risk from vehicle or equipment use. At-risk animals would be moved to adjacent habitat, out of harms way.

10.9 Mojave River Vole (*Microtus californicus mohavensis*) Mitigation Measures

The following mitigation measures are commonly applied in activities with the potential to affect the Mojave River Vole. Each measure has been modified to most aptly apply to the Proposed Project and collectively, have been designed to fully mitigate adverse impacts to this species.

1) Before initiating ground-disturbing activities or vehicle travel in the vicinity of the VVWRA ponds or in proximity to the Mojave River, a qualified biologist would survey existing roads to ensure individual Mojave River Voles would not be at risk from vehicle or equipment use. Should at-risk animals be identified, Proposed Project work would be halted until the animal leaves on its own accord.

10.10 Onsite Nesting and Migratory Bird Mitigation Measures

The following mitigation measures are commonly applied in activities with the potential to affect avian species addressed under the Migratory Bird Treaty Act (MBTA). Each measure has been modified to most aptly apply to the disturbance footprint of the Proposed Project. Collectively, these measures have been designed to fully mitigate adverse impacts to both nesting and migratory birds identified in active work areas.

1) Prior to any proposed vegetation removal or site grading within the avian nesting season (February 1 through August 31), a bird nest survey would be conducted by a qualified biologist. If no nests are found, construction would proceed. If nests are found, impact avoidance measures would be required until such time as the fledgling bird(s) have left the nest.

2) Prior to any proposed vegetation removal or site grading in avian migratory seasons (February through April; July through October), an avian presence survey would be conducted by a qualified biologist. If no vulnerable migratory bird use is detected, construction would proceed. If migratory birds are found and determined to be at-risk, Proposed Project work would be halted until the bird(s) are no longer present.

10.11 Offsite Nesting and Migratory Bird Mitigation Measures

Project activities occurring in close proximity to the Mojave River corridor, such as portions of Segment 1, would be scheduled to avoid the avian nesting season (February 15 through August 31) of the identified special status riparian-nesting species (i.e., Cooper's Hawk, Yellow Warbler, Summer Tanager, etc.).

During migratory seasons (February through April; July through October), qualified biological monitors would be present during proposed construction work in these areas to further no disturbance impacts to these species occur as the result of the Proposed Project. Should it be determined that any special status bird species identified herein are at risk during migratory travel, precipitating Project activities would be halted in the area until the potentially-affected bird(s) have left at-risk areas.

11.0 CONCLUSION

General biological surveys and biotic inventories, including focused surveys for the state and federally listed-Threatened Desert Tortoise, state listed-Threatened Mohave Ground Squirrel and state-Protected Burrowing Owl were conducted throughout the affected area of the Proposed Project and zone of influence. These efforts detected the Desert Tortoise, Burrowing Owl and various migratory bird species (i.e., Le Conte's Thrasher, Loggerhead Shrike, Cooper's Hawk, etc.) both on and adjacent to the Proposed Project area. Although focused small mammal trapping did not detect the Mohave Ground Squirrel, the Project proponent has elected to assume presence of this species based on the presence of potentially suitable habitat in the Proposed Project area.

Implementation of the Proposed Project would result in permanent and temporary direct impacts to 408 acres of suitable Desert Tortoise and Mohave Ground Squirrel habitat.. In addition, a subset of this Proposed Project acreage is used periodically by at least three Burrowing Owls, an unknown number of Le Conte's Thrasher and Loggerhead Shrike, as well as other migratory bird species. A temporary, as well as permanent loss of avian habitat would also be expected as a result of the Proposed Project. Impact minimization measures have been proposed, in addition to surface disturbance revegetation, species-specific mitigation measures and affected habitat compensation.

This BA is intended to facilitate ESA Section 7 consultation between the EPA and the FWS relative to the Proposed Project's impacts to the Desert Tortoise. It is also intended to facilitate CESA Section 2081 incidental "take" permitting by the CDFG relative to the Desert Tortoise and Mohave Ground Squirrel. The resulting ESA Section 7 Biological Opinion and federal incidental take statement; as well as the resulting CESA Section 2081 incidental "take" permit, would be required for authorization of the Proposed Project. Terms and conditions outlined in these documents would be binding and are anticipated to fully mitigate all anticipated biological resource impacts to a less than significant level.

12.0 LITERATURE CITED AND REFERENCES

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APPENDIX 1

Victorville 2 Hybrid Power Project

MAPS FOR THE VICTORVILLE 2 HYBRID POWER PROJECT

APPENDIX 2

Victorville 2 Hybrid Power Project

REPRESENTATIVE SITE PHOTOS FOR THE VICTORVILLE 2 HYBRID POWER PROJECT

APPENDIX 3

Victorville 2 Hybrid Power Project

ELECTRICAL TRANSMISSION LINE TOWER DISTURBANCE DRAWINGS AND FIGURES

APPENDIX 4

Victorville 2 Hybrid Power Project

OBSERVED PLANT SPECIES LIST FOR THE VICTORVILLE 2 HYBRID POWER PROJECT

APPENDIX 4

Vascular Plants Observed on Victorville 2 Hybrid Power Project, City of Victorville, San Bernardino County, California

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This list reports only the plants observed on this site by this study. Other species may have been overlooked or undetectable due to their growing/activity season. Plants were identified from keys, descriptions and drawings in Hickman (ed.) 1993, and Munz 1974. Some specimens were identified or confirmed by Andrew C. Sanders (UC Riverside Herbarium). Unless noted otherwise, nomenclature and systematics follows Hickman (ed.) 1993.

SYMBOLS AND ABBREVIATIONS:

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*	Non-native (introduced) species.
**	Sensitive species (see text).
cf.	Uncertain identification, but plant specimen "compares favorably" to named species (from Latin *confer*: compare [with]).
sp.	Identified only to genus; species unknown (plural = spp.).

CONIFERAE	CONE BEARING PLANTS
GNETAE	JOINT FIRS
Cupressaceae *Juniperus californica*	**Cypress Family** California juniper
Ephedraceae *Ephedra nevadensis*	**Ephedra Family** Nevada joint fir
ANGIOSPERMAE	
DICOTYLEDONEAE	DICOT FLOWERING PLANTS
Amaranthaceae *Amaranthus* sp.	**Amaranth Family** Identified to genus only
Apiaceae *Lomatium mohavense*	**Carrot Family** Mojave lomatium

Asteraceae	**Sunflower Family**
Acamptopappus sphaerocephalus	rayless goldenhead
Ambrosia acanthicarpa	burweed
Ambrosia dumosa	burrobush
Artemisia tridentate	big sagebrush
Aster subulatus	No common name
Brickellia cf. desertorum	No common name
Chaenactis fremontii	desert pincushion
Chrysothamnus nauseosus	rabbitbrush
Conyza canadensis	horseweed
Ericameria cooperi	Cooper's goldenbush
Ericameria linearifolia	interior goldenbush
Eriophyllum wallacei	Wallace's woolly daisy
Filago sp.	Identified to genus only
* *Gnaphalium luteoalbum*	No common name
Gutierrezia sp.	Identified to genus only
Helianthus annus	annual sunflower
Heterotheca grandiflora	telegraph weed
Hymenoclea salsola	cheesebush
* *Lactuca serriola*	Prickly Lettuce
Lessingia lemmonii	No common name
Malacothrix glabrata	desert dandelion
Senecio flaccidus	No common name
* *Sonchus oleraceus*	common sow thistle
Stephanomeria exigua	No common name
Tetradymia stenolepis	Mojave cottonthorn
Tetradymia cf. spinosa or *axillaris*	Identified to genus, uncertain species
Bignoniaceae	**Bignonia Family**
Chilopsis linearis	desert willow
Boraginaceae	**Borage Family**
Amsinckia tessellata	checkered fiddleneck
Cryptantha micrantha var. *micrantha*	purple-root cryptantha
Cryptantha pterocarya	wingnut cryptantha
Pectocarya linearis	pectocarya
Pectocarya penicillata	sleeping combseed
Pectocarya platycarpa	broadfruit combseed
Brassicaceae	**Mustard Family**
**Brassica tournifortii*	Sahara mustard
Descurainia pinnata	tansy mustard

**Cactaceae*	short-pod mustard
**Sisymbrium altissimum*	tumble mustard
Streptanthella longirostris	longbeak streptanthella
Cactaceae	**Cactus Family**
Opuntia basilaris	beavertail cactus
Opuntia echinocarpa	silver cholla
**Opuntia ficus-indica*	Indian fig
Opuntia ramossissima	pencil cholla
Caryophyllaceae	**Pink Family**
Loeflingia squarrosa	No common name
Chenopodiaceae	**Goosefoot Family**
Atriplex canescens	four-winged saltbush
Atriplex confertifolia	shadscale
Atriplex polycarpa	all scale
**Atriplex semibaccata*	Australian saltbush
Atriplex spinifera	spine scale
Krascheninnikovia lanata	winter fat
**Salsola tragus*	Russian thistle
Cusctaceae	**Dodder Family**
Cuscuta denticulata	dodder
Euphorbiaceae	**Spurge Family**
Chamaesyce albomarginata	rattlesnake spurge
Croton californica	California croton
Eremocarpus setigerus	dove weed
Stillingia linearifolia	narrow-leaved stillingia
Fabaceae	**Pea Family**
Astragalus lentiginosus var. *fremontii*	freckled milkvetch
Lotus scoparius	California broom
Geraniaceae	**Geranium Family**
**Erodium cicutarium*	red-stemmed filaree
Hydrophyllaceae	**Waterleaf Family**
Eriodictyon trichocalyx	No common name
Nama demissum	desert nama
Lamiaceae	**Mint Family**
**Marrubium vulgare*	horehound

Salazaria mexicana	paperbag bush
Salvia carduacea	thistle-sage
Salvia columbariae	chia
Salvia dorrii	desert sage, purple sage
Loasaceae	**Loasa Family**
Petalonyx thurberi	sandpaper plant
Malvaceae	**Mallow Family**
Eremalche exilis	white mallow
Nyctaginaceae	**Four O' Clock Family**
Abronia pognantha	Mojave sand verbena
Abronia villosa	desert sand verbena
Mirabilis bigelovii	wishbone bush
Onagraceae	**Evening Primrose Family**
Camissonia boothii ssp. *desertorum*	desert sun cup
Camissonia brevipes	yellow cups
Camissonia campestris	Mojave sun cup
Camissonia claviformis	brown-eyed primrose
Camissonia pallida	white evening primrose
Oenothera deltoides	devil's lantern
Oenothera primaveris	desert evening primrose
Papaveraceae	**Poppy Family**
Dendromecon rigida	bush poppy
Eschscholtzia minutiflora	little gold poppy
Polemoniaceae	**Phlox Family**
Eriastrum sapphirinum	sapphire woollystar
Loeseliastrum matthewsii	desert calico
Polygonaceae	**Buckwheat Family**
Chorizanthe brevicornu	brittle spineflower
Chorizanthe thurberi	Thurber's spineflower
Eriogonum convilleanum	No common name
Eriogonum davidsonii	No common name
Eriogonum fasciculatum	California buckwheat
Eriogomun inflatum	desert trumpet
Eriogonum plumatella	flat-topped buckwheat
Rumex hymenosepalus	wild-rhubarb
Rhamnaceae	**Buckthorn Family**

Rhamnus ilicifolia	holly-leaf redberry
Rosaceae	**Rose Family**
Prunus fasciculata	desert almond
Salicaceae	**Willow Family**
Populus fremontii	Fremont cottonwood
Salix exigua	narrow-leaved willow
Scrophulariaceae	**Figwort Family**
Castilleja sp.	Identified to genus only
Solanaceae	**Nightshade Family**
Datura wrightii	Jimson weed
Lycium andersonii	Anderson desert-thorn
Lycium cooperi	peach-thorn
* *Nicotiana glauca*	tree tobacco
Solanum sp.	Identified to genus only
Tamaricaceae	**Tamarix Family**
**Tamarix ramosissima*	salt cedar, tamarix
Ulmaceae	**Elm Family**
**Ulmus pumila*	Siberian elm
Viscaceae	**Mistletoe Family**
Phoradendron densum	dense mistletoe
Zygophyllaceae	**Caltrop Family**
Larrea tridentata	creosote bush
MONOCOTYLEDONEAE	**MONOCOT FLOWERING PLANTS**
Liliaceae	**Lily Family**
Yucca brevifolia	Joshua tree
Poaceae	**Grass Family**
Achnatherum hymenoides	Indian ricegrass
Achnatherum speciosum	desert needlegrass
**Bromus diandrus*	rip-cut grass
**Bromus madritensis* var. *rubens*	red brome
**Bromus tectorum*	cheat grass
**Cynodon dactylon*	Bermuda grass
Elymus elmoides	squirreltail
**Schismus barbatus*	Mediterranean schismus

APPENDIX 5

Victorville 2 Hybrid Power Project

OBSERVED VERTEBRATE SPECIES LIST FOR THE VICTORVILLE 2 HYBRID POWER PROJECT

APPENDIX 5

Vertebrates Observed on Victorville 2 Hybrid Power Project, City of Victorville, San Bernardino County, California

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This list reports only plants and animals observed on or adjacent to the site while conducting field activities (i.e., surveys and monitoring) for this Project. Other species may have been overlooked or undetectable due to their activity season.

Nomenclature and taxonomy for fauna observed on site follows Stebbins (1985) and Collins (1990) for herpetofauna, American Ornithologists' Union Checklist (1983 and supplements) for avifauna, and Laudenslayer *et al.* (1991) for mammals.

SYMBOLS AND ABBREVIATIONS:

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*	Non-native (introduced) species.
**	Sensitive species (see text).
cf.	Uncertain identification, but plant specimen "compares favorably" to named species (from Latin *confer*: compare [with]).
sp.	Identified only to genus; species unknown (plural = spp.).

HERPETOFAUNA	REPTILES & AMPHIBIANS
TESTUDINES	**TURTLES**
Testudinidae	**Land Tortoises**
****Gopherus agassizii**	desert tortoise
SQUAMATA	**LIZARDS & SNAKES**
Crotaphytidae	**Collared and Leopard Lizards**
Crotaphytus wislizenii	long-nosed leopard lizard
Iguanidae	**Iguanids**
Sceloporus magister	desert spiny lizard
Sceloporus occidentalis	western fence lizard
Uta stansburiana	side-blotched lizard
Phrynosomatidae	**Spiny Lizards & Relatives**
Callisaurus draconoides	zebra-tailed lizard

Phrynosoma platyrhinos	desert horned Lizard
Teiidae	**Whiptails & Racerunners**
Aspidoscelis (Cnemidophorus) tigris tigris	Great Basin whiptail
Xantusiidae	**Night Lizards**
Xantusia vigilis	Yucca night lizard
Coluberidae	**Colubrids**
Arizona elegans	glossy snake
Masticophis flagellum piceus	coachwhip
Pituophis catenifer deserticola	Great Basin gopher snake
Viperidae	**Vipers**
Crotalus cerastes	sidewinder
Crotalus scutulatus	Mojave rattlesnake
AVIFAUNA	**BIRDS**
Anatidae	**Swans, Geese, and Ducks**
Aix sponsa	wood duck
Anas strepera	gadwall
Anas americana	American wigeon
Anas platyrhynchos	mallard
Anas cyanoptera	cinnamon teal
Anas clypeata	northern shoveler
Anas crecca	green-winged teal
Aythya americana	redhead
Aythya collaris	ring-necked duck
Aythya affinis	lesser scaup
Bucephala albeola	bufflehead
Oxyura jamaicensis	ruddy duck
Odontophoridae	**New World Quail**
Callipepla californica	California quail
Podicipedidae	**Grebes**
Podilymbus podiceps	pied-billed grebe
Podiceps nigricollis	eared grebe
Ardeidae	**Herons and Egrets**
Ardea alba	great egret
Cathartidae	**Vultures**

Cathartes aura	turkey vulture
Accipitridae	**Hawks, Old World Vultures, Harriers**
****Pandion haliaetus*	osprey
****Circus cyaneus*	northern harrier
Buteo jamaicenisis	red-tailed hawk
****Buteo swainsoni*	Swainson's hawk
****Haliaeetus leucocephalus*	bald eagle
Accipiter striatus	sharp-shinned hawk
****Accipter cooperii*	Cooper's hawk
Falconidae	**Caracaras and Falcons**
****Falco mexicanus*	prairie falcon
Falco sparverius	American kestrel
Rallidae	**Rails, Gallinules, and Coots**
Fulica americana	American coot
Charadriidae	**Plovers and Relatives**
Charadrius vociferus	killdeer
Recurvirostridae	**Stilts and Avocets**
Himantopus mexicanus	black-necked stilt
Scolopacidae	**Sandpipers**
Tringa melanoleuca	greater yellowlegs
Actitis macularius	spotted sandpiper
Calidris mauri	western sandpiper
Calidris minutilla	least sandpiper
Laridae	**Skuas, Gulls, Terns, and Skimmers**
Larus delawarensis	ring-billed gull
Larus californicus	California gull
Columbidae	**Pigeons and Doves**
Columba livia	rock pigeon
Zenaida macroura	mourning dove
Cuculidae	**Cuckoos, Roadrunners, and Anis**
Geococcyx californianus	greater roadrunner
Strigidae	**Typical Owls**
****Athene cunicularia*	burrowing owl

Tytonidae	**Barn Owls**
Tyto alba	barn owl
Caprimulgidae	**Goatsuckers**
Chordeiles acutipennis	lesser nighthawk
Apodidae	**Swifts**
***Chaetura vauxi*	Vaux's swift
Aeronautes saxatalis	white-throated swift
Trochilidae	**Hummingbirds**
Archilochus alexandri	black-chinned hummingbird
Calypte anna	Anna's hummingbird
***Calypte costae*	Costa's hummingbird
***Selasphorus rufus*	rufous hummingbird
Picidae	**Woodpeckers and Allies**
***Picoides nuttallii*	Nuttall's woodpecker
Picoides pubescens	downy woodpecker
Picoides scalaris	ladder-backed woodpecker
Colaptes auratus	Northern Flicker
Tyrannidae	**Tyrant Flycatchers**
Contopus sordidulus	western wood-pewee
Empidonax hammondii	Hammond's flycatcher
Empidonax difficilis/occidentalis	"western" flycatcher
Sayornis nigricans	black phoebe
Sayornis saya	Say's phoebe
Myiarchus cinerascens	ash-throated flycatcher
Tyrannus vociferans	Cassin's kingbird
Tyrannus verticalis	western kingbird
Laniidae	**Shrikes**
***Lanius ludovicianus*	loggerhead shrike
Corvidae	**Jays, Magpies, and Crows**
Corvus corax	common raven
Alaudidae	**Larks**
Eremophila alpestris	horned lark

Hirundinidae	**Swallows**
Hirundo rustica	barn swallow
Petrochelidon pyrrhonota	cliff swallow
Stelgidopteryx serripennis	northern rough-winged swallow
Tachycineta bicolor	tree swallow
Tachycineta thalassina	violet-green swallow
Remizidae	**Verdin**
Auriparus flaviceps	verdin
Aegithalidae	**Long-tailed Tits and Bushtits**
Psaltriparus minimus	bushtit
Troglodytidae	**Wrens**
Campylorhynchus brunneicapillus	cactus wren
Thryomanes bewickii	Bewick's wren
Troglodytes aedon	house wren
Regulidae	**Kinglets**
Regulus calendula	ruby-crowned kinglet
Sylviidae	**Old World Warblers and Gnatcatchers**
Polioptila caerulea	blue-gray gnatcatcher
Turdidae	**Solitaires, Thrushes, and Allies**
Sialia mexicana	western bluebird
Catharus guttatus	hermit thrush
Mimidae	**Mockingbirds and Thrashers**
Mimus polyglottos	northern mockingbird
Oreoscoptes montanus	sage thrasher
***Toxostoma lecontei*	Le Conte’s thrasher
***Toxostoma redivivum*	California thrasher
Sturnidae	**Starlings**
Sturnus vulgaris	European starling
Motacillidae	**Wagtails and Pipits**
Anthus rubescens	American pipit
Ptilogonatidae	**Silky-flycatchers**
Phainopepla nitens	phainopepla

Parulidae	**Wood-Warblers**
Vermivora celata	orange-crowned warbler
Dendroica coronata	yellow-rumped warbler
Dendroica nigrescens	black-throated gray warbler
***Dendroica occidentalis*	hermit warbler
Geothlypis trichas	common yellowthroat
Wilsonia pusillla	Wilson's warbler
Thraupidae	**Tanagers**
Piranga ludoviciana	western tanager
Emberizidae	**Emberizines**
***Spizella passerina*	chipping sparrow
Chondestes grammacus	lark sparrow
***Spizella breweri*	Brewer's sparrow
Amphispiza belli	sage sparrow
Amphispiza bilineata	black-throated sparrow
Passerculus sandwichensis	savannah sparrow
Melospiza melodia	song sparrow
Zonotrichia leucophrys	white-crowned sparrow
Zonotrichia atricapilla	golden-crowned sparrow
Icteridae	**Blackbirds and Allies**
Agelaius phoeniceus	red-winged blackbird
Sturnella neglecta	western meadowlark
Euphagus cyanocephalus	Brewer's blackbird
Molothrus ater	brown-headed cowbird
Icterus bullockii	Bullock's oriole
Fringillidae	**Fringilline and Cardueline Finches**
Carpodacus mexicanus	house finch
Carduelis psaltria	lesser goldfinch
***Carduelis lawrencei*	Lawrence's goldfinch
Carduelis tristis	American goldfinch
Passeridae	**Old World Sparrows**
Passer domesticus	house sparrow
MAMMALS	**MAMMALS**
Leporidae	**Rabbits and Hares**
Lepus californicus	black-tailed jackrabbit

Sylvilagus audubonii	Audubon's cottontail
Sciuridae	**Squirrels**
Ammospermophilus leucurus	white-tailed antelope squirrel
Geomyidae	**Pocket Gophers**
Thomomys bottae	Botta's pocket gopher
Heteromyidae	**Hereromyid Rodents**
Perogmathus longimembris	little pocket mouse
Dipodomys merriami	Merriam's kangaroo rat
Dipodomys panamintinus	Panamint kangaroo rat
Muridae	**Rats, Mice, and Voles**
Neotoma lepida	desert woodrat
Onychomys torridus ramona	southern grasshopper mouse
Canidae	**Foxes, Wolves, Coyotes**
Canis latrans	coyote
Vulpes macrotis	kit fox

Appendix 3.

Victorville 2 Hybrid Power Project Biological Assessment Addendum (AMEC 2008)

Victorville 2 Hybrid Power Project
BIOLOGICAL ASSESSMENT ADDENDUM

Prepared for:

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AMEC Job #6554000228
17 January 2008

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Victorville 2 Hybrid Power Project
BIOLOGICAL ASSESSMENT ADDENDUM

1.0 INTRODUCTION

This biological assessment (BA) addendum has been prepared by AMEC Earth & Environmental, Inc. (AMEC) on behalf of ENSR Corporation for the City of Victorville and Inland Energy, Inc. concerning the proposed Victorville 2 Hybrid Power Project (Project), located in the City of Victorville, San Bernardino County, California (Figure 1). The purpose of this document is to provide the U.S. Environmental Protection Agency (EPA), the U.S. Fish and Wildlife Service (FWS) and the California Department of Fish and Game (CDFG) with additional site-specific analyses regarding species protected under the federal Endangered Species Act (ESA) and the California Endangered Species Act (CESA), as well as other special status species that may be affected by the Project.

A draft Biological Assessment (BA) was previously submitted to the above agencies, pursuant to an ESA Section 7 and CESA Section 2081 consultation regarding EPA's issuance of a Prevention of Significant Deterioration (PSD) permit for the Project (Proposed Action) under the federal Clean Air Act. The following addendum incorporates specifics of the Project modified since the draft BA was prepared, provides additional analysis regarding these modifications and addresses FWS comments contained in a December 12, 2007 letter to EPA.

The focal species addressed herein are the state and federally listed-threatened desert tortoise (*Gopherus agassizii*), the state listed-threatened Mohave ground squirrel (*Spermophilus mohavensis*) and the western burrowing owl (*Athene cunicularia hypugea*). The latter avian species is a CDFG-designated Species of Special Concern protected by both the California Fish and Game Code and the federal Migratory Bird Act.

2.0 PROJECT MODIFICATIONS

Two modifications to the Project have been identified since the draft BA was prepared and submitted for agency review. These include a revision of the planned vehicular access route and a revision of potable water source for Project operations (Figure 2). Both of these modifications are discussed below.

Revised Site Access Route

The VV2 Project will use existing roads for construction and operations site access -- Adelanto, Colusa and Helendale Roads. This access route would be paved along its four-mile length prior to VV2 Project construction activities, but no other roadway modifications are proposed. Temporary desert tortoise exclusion fencing will be installed, under the oversight of qualified biologists, along the currently disturbed roadway shoulders prior to paving and will be removed when Project construction activities are completed.

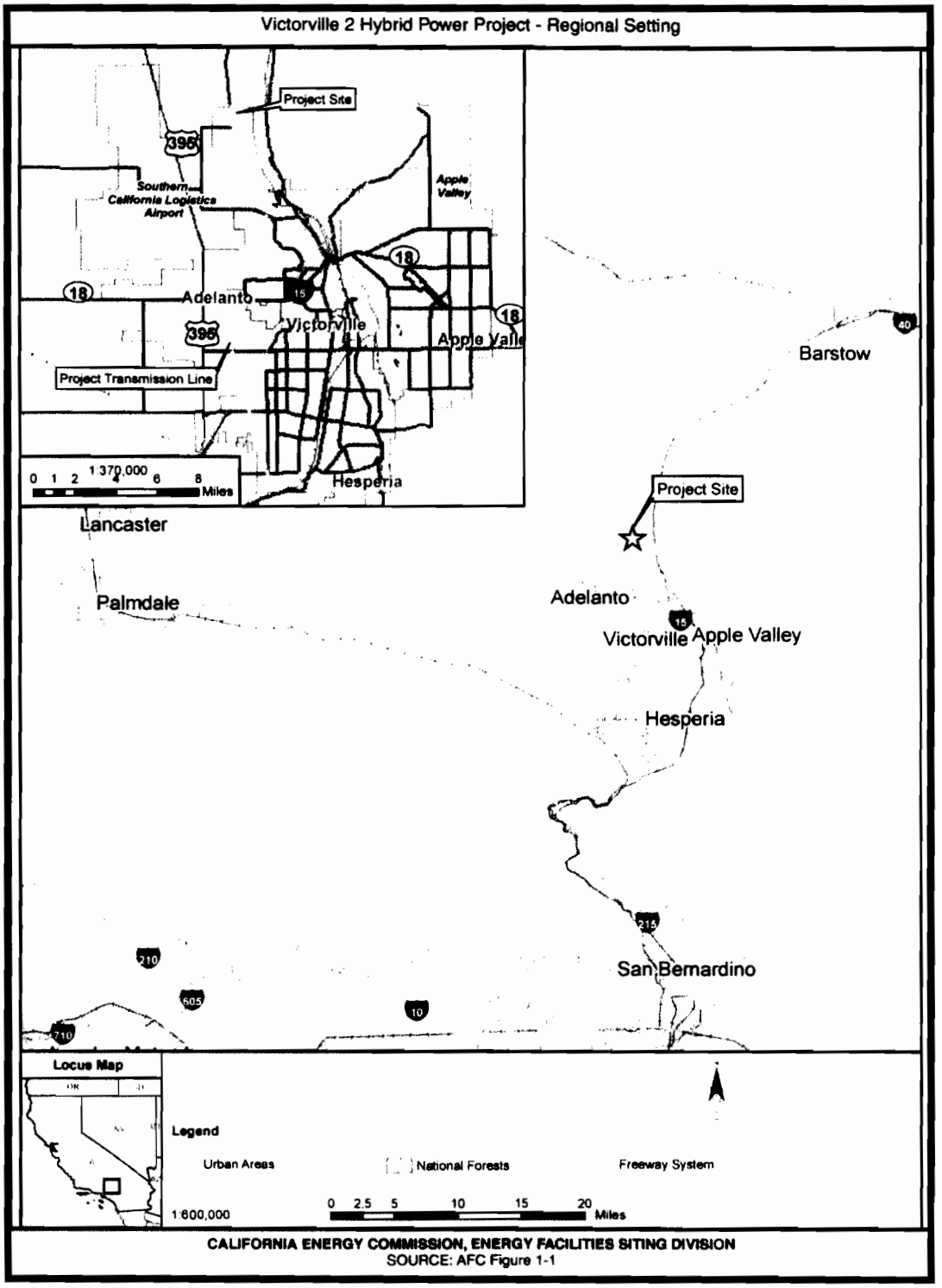

Figure 1. Regional map of the Victorville 2 Hybrid Power Project.

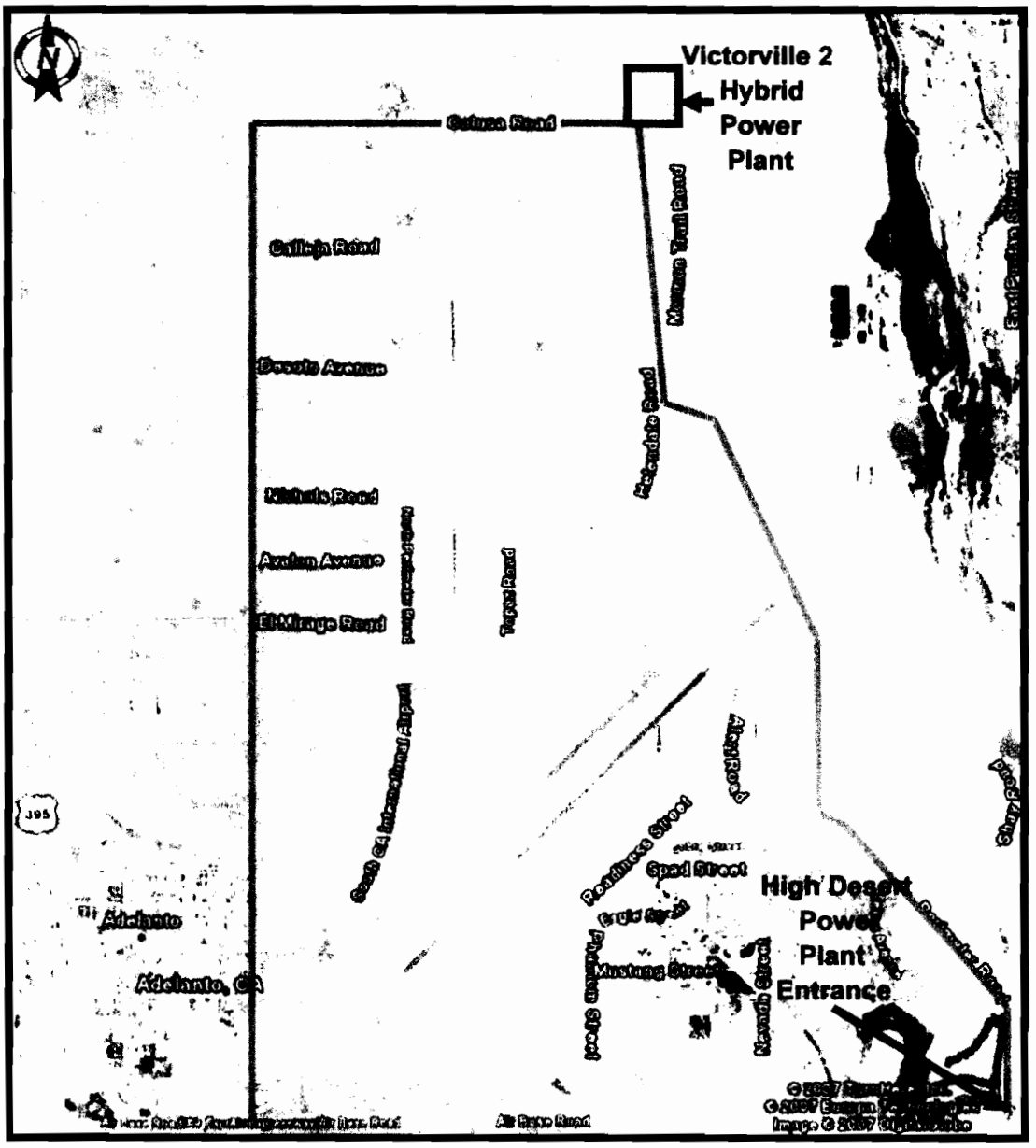

Figure 2. Project modifications map. Revised vehicular access route for the VV2 Hybrid Power Project (highlighted in blue), from Airbase Road in Adelanto California. The planned potable water pipeline placement (highlighted in red) largely follows Perimeter Road to connect with the existing City of Victorville water distribution system near the entrance of the High Desert Power Plant.

Revised Potable Water Source

Rather than excavating an onsite well to supply potable water for the Project, as initially analyzed in the draft BA, an approximate three-mile-long potable water pipeline will be installed. This pipeline will be placed in a 15,000-foot-long by 85-foot-wide right-of-way following the route of the existing Perimeter Road for part of the way, and the route of the City's planned future extension of Perimeter Road for the remainder of the three-mile pipeline route between the Project and the entrance to the High Desert Power Project.

3.0 ENVIRONMENTAL CONSEQUENCES OF THE MODIFIED PROJECT

3.1 Temporary and Permanent Impacts

The following analysis focuses only on environmental consequences of the Project as modified by the revised vehicle access route and planned potable water pipeline installation described above. Affected resource descriptions and environmental consequence analysis specific to all other aspects of the Project have been provided in the previously prepared draft BA.

Small numbers of desert tortoise are known to occur in the immediate vicinity of both the modified vehicle access route and the planned potable water pipeline alignment. Some of this acreage has been assumed by the Project Applicant as occupied by unknown numbers of the Mohave ground squirrel, although this species has not been sighted or trapped in the immediate Project area (AMEC 2007). This habitat may be used periodically by small numbers of western burrowing owl, Le Conte's thrasher and loggerhead shrike. Habitat situated immediately adjacent to Adelanto, Colusa, Helendale and Perimeter Roads has been degraded to varying degrees due to regular vehicle traffic occurring along these roads, which have been used by a small number of residents and maintained by the County of San Bernardino for several years.

No additional surface disturbance is anticipated to occur as a result of installing desert tortoise exclusion fencing or subsequent paving of the revised access route. However, an estimated 30 acres of surface disturbance within the Project's linear utility segment 1 is anticipated to occur as a result of potable water pipeline installation.

Habitat for the desert tortoise and Mohave ground squirrel within the potable water pipeline alignment is considered a temporary disturbance because it will be revegetated according to a plan prepared by the Project applicant. However, it is recognized that the return of impacted habitat to pre-disturbance values would take several years.

Implementation of Project modifications would thus result in temporary impacts to 30 acres of native plant communities (Creosote Bush Scrub, Saltbush Scrub, and Mojavean Juniper Woodland and Scrub) suitable for use by the desert tortoise, Mohave ground squirrel, western burrowing owl, Le Conte's thrasher, and loggerhead shrike (Tables 1-3).

Table 1. Temporary impacts (in acres) per affected vegetation community and Project component, incorporating modifications addressed in this addendum.

Vegetation Community	Power Plant Site	West Staging Area	South Staging Area	Linear Utility Feature Segments			TOTAL
				1	2	3	
Creosote Bush & Saltbush Scrub	0	30.0	20.0	39.2	2.2	31.8	123.2
Pinyon-Juniper Woodland	0	0	0	0	0	23.2	23.2
Total	0	30.0	20.0	39.2	2.2	55.0	146.4

Table 2. Permanent impacts (in acres) per affected vegetation community and Project component, incorporating modifications addressed in this addendum.

Vegetation Community	Power Plant Site	West Staging Area	South Staging Area	Linear Utility Feature Segments			TOTAL
				1	2	3	
Creosote Bush & Saltbush Scrub	285.0	0	0	6.7	0.1	0.1	291.9
Pinyon-Juniper Woodland	0	0	0	0	0	0.2	0.2
Non-native Grassland	3.0	0	0	0	0	0	3.0
Disturbed & Developed Areas	50. 0	0	0	3.6	0	0	53.6
Total	338.0	0	0	10.3	0.1	0.3	348.7

Table 3. Temporary and permanent Covered Species impacts (in acres) per plant communities considered suitable for habitation, incorporating modifications addressed in this addendum.

Vegetation Community	Power Plant Site	West Staging Area	South Staging Area	Linear Utility Feature Segments			TOTAL
				1	2	3	
Creosote Bush & Saltbush Scrub	285.0	30.0	20.0	45.9	2.3	31.9	415.1
Pinyon-Juniper Woodland	0	0	0	0	0	23.4	23.4
Total	285.0	30.0	20.0	45.9	2.3	55.3	438.5

The Project, as modified, has the potential for incidental take of desert tortoises, Mohave ground squirrels (if present), western burrowing owls, as well as other bird nestlings in the vicinity of the vehicle access route and potable water pipeline alignment. This incidental take, i.e., animal harassment, harm or mortality, could result from general surface disturbance (e.g., earth movement, vegetation removal), heavy machinery operation, vehicle collisions with undetected animals and/or the crushing of animals within occupied burrows. Various activities, such as heavy equipment operation and vehicle use, also have the potential to generate disturbance offsite, adjacent to the Project area during the initial construction phase. Some bird species may abandon nests if nearby noise levels are excessive.

In general, initial Project construction activities could result in the temporary reduction of wildlife use on lands adjacent to these two modified project component areas, as the result of construction dust, human activity and noise. Wildlife use of these adjacent lands would be expected to return to pre-construction levels following the completion of construction activities.

Increased traffic on access roads associated with the Project both during the initial construction phase and during routine operations and maintenance poses the potential for increased vehicle-related wildlife mortality. Roadkills could potentially enhance food provisioning opportunities for the common raven and other potential predators of the desert tortoise, Mohave ground squirrel, western burrowing owl and other bird species. However, temporary fencing on the construction site access route and the use of biological monitors on all aspects of the Project would greatly minimize the potential for increased vehicle-related tortoise mortality.

The temporary loss of approximately 30 additional acres of desert tortoise habitat associated with the potable water pipeline and the potential "take" of the federally listed desert tortoise constitutes a "may affect" determination of effect with regard to the Project, as modified, under the ESA. Similar to the Project prior to modification, ESA Section 7 consultation and incidental take authorization would be required. The temporary disturbance of this same 30 acres supporting Mohave ground squirrel habitat and the potential "take" of state-listed animals (desert tortoise and Mohave ground squirrel), also necessitates incidental take permitting under CESA Section 2081. Project modifications will result in temporary impacts to 30 acres of suitable covered species habitat (Tables 1-3).

As a result of data collected during previous zone-of-influence tortoise/western burrowing owl surveys, no desert tortoises, Mohave ground squirrel or western burrowing owl are believed to occur in either the access route road shoulders or along the potable water pipeline alignment. However, the desert tortoise, the Mohave ground squirrel and western burrowing owl are known to occur in the general vicinity. The Project modification areas are also known to support suitable habitat for these species. While Project modification areas will be surveyed prior to all planned surface disturbance work per mitigation measures previously specified in the draft BA (AMEC 2007), the removal of tortoises from harm's way along the access route may become necessary. Similarly, the removal of desert tortoises, Mohave ground squirrel or western burrowing owl from the potable water pipeline alignment during the Project is considered a possible impact.

Four state and/or federally listed species occur in the Project area, but would not be affected by the Project: least Bell's vireo (*Vireo bellii pusillus*), southwestern willow flycatcher (*Empidonax traillii extimus*), western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), and Swainson's hawk (*Buteo swainsoni*). Likewise, there would be no effects to federally designated critical habitat for southwestern willow flycatcher. While there is potentially suitable nesting (and roosting) habitat within the Mojave River situated east of the potable water pipeline alignment, there is a substantial distance between the Perimeter Road shoulder where pipeline installation would occur and the river corridor. None of the above listed avian species has been reported as nesting in this proximal portion of the Mojave River and these species' migration travels tend to remain largely in the immediate river corridor. No surface disturbance associated with the Project as modified would occur in proximal Mojave River riparian habitat.

While small amounts of salts will be present in evaporative mist emitted by the proposed power plant's cooling tower, these salts are unlikely to adversely affect habitat used by the least bell's vireo, southwestern willow flycatcher, Swainson's hawk or western yellow-billed cuckoo over the short or long term. This conclusion is based on the project's air quality impact assessment finding that only a very small amount of salt (<0.09 $\mu g/m^3$) would potentially reach that portion of the Mojave River situated closest to the project. A virtually undetectable amount of evaporative mist salt (<0.01 $\mu g/m^3$) would potentially reach habitat federally designated as critical habitat for the southwestern willow flycatcher.

Even on a long-term basis, only a very small amount of salt from the proposed cooling tower would be deposited within the Mojave River. As the limited and deciduous vegetation occurring in this reach of the Mojave River is known to be adapted to the natural salt deposition/buildup produced by in an arid riparian environment, it can be concluded that this aspect of the project is unlikely to adversely affect habitat used by the above listed avian species.

Project emissions are also expected to contain minute amounts of nitrogen. The power plant would emit approximately 111.9 tons of nitrogen per year as a waste product during its operation; additional nitrogen would also be produced during construction. A small degree of nitrogen deposition on soils situated immediately adjacent to the power plant cooling towers is expected to occur over time. Desert substrates are generally poor in nitrogen; an increased level of nitrogen could further promote the growth and spread of non-native species of plants, which are generally adapted to a higher level of soil nitrogen than native species. The proliferation of weedy species can compromise the value of local habitat supporting the desert tortoise and Mohave ground squirrel (if it occurs), and potentially increase wildfire fuel sources.

While nitrogen deposition may benefit non-native annual grasses occurring in the immediate vicinity of the Project to a trace degree, this deposition is not expected to extend very far from the power plant cooling tower itself or substantially benefit non-native growth to the detriment of native plant species occurring in the area. Therefore the value of local habitat for the desert tortoise and Mohave ground squirrel is not expected to be compromised. The trace amounts of nitrogen emissions anticipated as a result of Project operations are not expected to reach the Mojave River in amounts that would affect vegetative growth in associated riparian habitats.

A degree of increased noise over ambient sound levels would be expected during installation of the potable water pipeline. However, as the pipeline alignment occurs on the shoulder of an infrequently used road, at somewhat of a distance from Mojave River riparian habitat, this temporary noise increase is not anticipated to substantially affect any species of concern.

3.2 Indirect Impacts

In addition to outright vegetation removal along the potable water pipeline alignment, the operation of heavy equipment and vehicle use may also indirectly affect habitat potentially suitable for the desert tortoise, Mohave ground squirrel (if present), Le Conte's thrasher, San Diego coast horned lizard (*Phrynosoma coronatum blainvillei*) and San Diego pocket mouse (*Chaetodipus fallax pallidus*) by providing a source for non-native or invasive plant species seed germination. Any resulting change of annual plant surface cover which reduced native plants and animals used by these species, or which detract from these species' foraging/survival, would be considered an indirect impact.

The introduction of non-native, as well as some invasive native, plant species sometimes occurs along roadsides that contain disturbed soils. These non-native and/or invasive plants often provide little or reduced nutritional value to native herbivores and can out-compete native plants in some situations. Lands affected by the Project already contain several non-native invasive plant species that also likely will establish themselves in soils disturbed by the Project. An effective revegetation of the potable water pipeline alignment soil disturbance area as currently planned, which re-establishes native perennial plants in soil disturbance areas, would reduce the amount of surface soils susceptible to non-native and invasive plant establishment.

Some non-native grass and mustard species, when established, can also alter natural wildfire regimes by increasing fuel connectivity and/or fuel loads, influencing wildfire severity and periodicity. Although no recent wildfire evidence was observed in the area, a high potential for wildfire in the region was noted in the several wildlife surveys undertaken for the Project.

Any creation or enhancement of wildfire fuel sources as a result of installing the potable water pipeline would indirectly add to the general threat of wildfire ignition in the affected area, which could affect habitat for the mammal and reptile species mentioned above. As mentioned above, several non-native and invasive plant species already occur in the Project area that will likely establish themselves in soils disturbed by the Project. An effective revegetation of the potable water pipeline alignment soil disturbance area, incorporating the removal of certain non-native plant species (i.e., *Salsola tragus* and *Brassica* spp.) during the immediate post-construction timeframe, would reduce potential wildfire fuel loading impacts.

Project operations are anticipated to generate varying levels of dust and ambient noise adjacent to the proposed power plant. Periodic maintenance and operation of proposed utility features are also expected to generate small degrees of dust, lighting and ambient noise.

3.3 Cumulative Impacts

Impacts associated with a single action, when considered individually, may not be considered significant. However, when considered collectively with other past, present, and future actions in the region, impacts of such actions may contribute incrementally to the loss of occupied/suitable habitat or individual special-status species. Cumulative impacts for the Project have been assessed in the previously-prepared BA and have not appreciably changed with the modifications discussed in this addendum.

4.0 IMPACT MINIMIZATION AND MITIGATION

Conservation measures previously incorporated into the Project apply to the vehicle access route and potable water pipeline installation modifications discussed in this addendum.

The following measures have been incorporated into the Project to address the modifications:

- A biological resource monitor will monitor the installation of all desert tortoise exclusion fencing along Adelanto, Colusa and Helendale Roads. A qualified biological resource monitor will similarly be onsite or on call during Project construction to address issues that emerge relative to possible desert tortoise entry onto fenced portions of these roads. If necessary, vehicle traffic/project work will be halted or safely directed around desert tortoises entering fenced access route roadways until such time as the affected animal leaves the area on its own accord.

- A 25 mph speed limit will be established for vehicular traffic associated with the Project along the Adelanto-Colusa-Helendale vehicle access route; as well as along Perimeter Road during potable water pipeline installation work.

- Biological resource monitors will monitor all potable water pipeline installation activities.

- Prior to any proposed vegetation removal or surface disturbance along Adelanto, Colusa, Helendale and Perimeter Roads, a western burrowing owl survey will be conducted according to established guidelines. If this species is detected as at-risk in areas where Project work will be occurring, protocol outlined by the CDFG and specified in the BA prepared for the Project will be followed.

- Prior to any proposed vegetation removal or surface disturbance along Adelanto, Colusa, Helendale and Perimeter Roads in the regional avian nesting season (February through June), an avian presence survey will be conducted by a qualified biologist(s). If no at-risk nesting bird use is detected, planned surface-disturbing activities would proceed. If nesting birds are found and determined to be at-risk, Project work would be halted in a 300-feet circumference non-disturbance buffer area until the affected bird(s) is no longer present.

4.1 Surface Disturbance Revegetation

Upon completion of construction of the potable water pipeline, associated soil disturbance areas will be planted with native species in accordance with a revegetation plan to be approved by USFWS, CDFG and CEC. This revegetation plan will include, but not be limited to: (1) the transplanting of all Joshua Trees occurring within the surface disturbance footprint of the potable water pipeline that are judged suitable for transplanting/adoption to appropriate habitat within the Project area or adopted out to appropriate entities in accordance with City of Victorville Joshua Tree Ordinance direction; (2) "vertical mulching", involving the placement or "planting" of shrubs salvaged during surface clearing of the pipeline, as well as large rocks/vegetative debris, into the soil disturbance area; (3) the hand-broadcasting of locally-collected native vegetation seed into the soil disturbance area; and (4) a focused removal of targeted non-native, invasive plants (*Salsola tragus* and *Brassica* spp.). All proposed revegetation of the potable water pipeline will be monitored by a qualified biologist to minimize impacts upon special status species potentially occurring in the vicinity of the Project.

5.0 CONCLUSION

This addendum has analyzed a modified vehicle access route for the Victorville 2 Hybrid Power Project using Adelanto, Colusa and Helendale Roads; and installation of an approximate three-mile-long potable water pipeline. These project modifications will result in an additional 30 acres of surface disturbance. Thirty (30) acres of desert tortoise and Mohave ground squirrel habitat would be temporarily impacted as a result of these Project modifications, raising the total temporary and permanent habitat disturbance of the Project to 438 acres. Impact minimization measures previously prescribed for the Project also mitigate the potential impacts of these modifications, and additional impact minimization and mitigation measures prescribed herein have been incorporated into the Project design.

6.0 LITERATURE CITED AND REFERENCES

AMEC Earth & Environmental, Inc. (AMEC). 2007. Draft [accepted as final] Victorville 2 hybrid power project biological assessment. City of Victorville Planning Department, Victorville California.

Appendix 4.

Victorville 2 Hybrid Power Project Biological Assessment Second Addendum (AMEC 2008)

Victorville 2 Hybrid Power Project
BIOLOGICAL ASSESSMENT SECOND ADDENDUM

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11 March 2008

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Victorville 2 Hybrid Power Project
BIOLOGICAL ASSESSMENT SECOND ADDENDUM

1.0 INTRODUCTION

This Biological Assessment Second Addendum (BA Second Addendum) has been prepared by AMEC Earth & Environmental, Inc. (AMEC) on behalf of ENSR Corporation for the City of Victorville and Inland Energy, Inc. concerning the proposed Victorville 2 Hybrid Power Project (VV2 Project or Project), located in the City of Victorville, San Bernardino County, California (Figure 1). The purpose of this document is to address comments submitted by the California Department of Fish and Game (CDFG) for their use in analyzing potential impacts to state-listed species under the auspices of the California Endangered Species Act (CESA), as well as other special status species and resources that may be affected by the Project.

A Biological Assessment (BA) was prepared by AMEC (2007) and submitted to the CDFG, the U.S. Environmental Protection Agency (EPA) and the U.S. Fish and Wildlife Service (FWS) pursuant to an Endangered Species Act (ESA) Section 7 consultation regarding EPA's issuance of a Prevention of Significant Deterioration (PSD) permit for the Project under the federal Clean Air Act, and pursuant to CESA Section 2081. A BA Addendum (AMEC 2008) was also previously prepared and submitted to the above agencies to address Project modifications arising following BA submittal. The "*Biological Opinion for the Victorville 2 Hybrid Power Project, San Bernardino County, California*" (1-8-07-F-67) was issued by the FWS on January 23, 2008.

The three focal species addressed in the BA, BA Addendum and BA Second Addendum are the state and federally listed-threatened desert tortoise (*Gopherus agassizii*), the state listed-threatened Mohave ground squirrel (*Spermophilus mohavensis*) and the western burrowing owl (*Athene cunicularia hypugea*). The latter avian species is a CDFG-designated Species of Special Concern protected by both the California Fish and Game Code and the federal Migratory Bird Act. The desert tortoise has also been specifically addressed in the above biological opinion issued for the Project.

Four state and/or federally listed avian species are also known to utilize riparian habitats in portions of the nearby Mojave River: least Bell's vireo (*Vireo bellii pusillus*), southwestern willow flycatcher (*Empidonax traillii extimus*), western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), and Swainson's hawk (*Buteo swainsoni*). All of the above avian species have been previously addressed in the BA and BA Addendum prepared for the Project. Both the least Bell's vireo and southwestern willow flycatcher have also been specifically addressed in the above biological opinion issued for the Project.

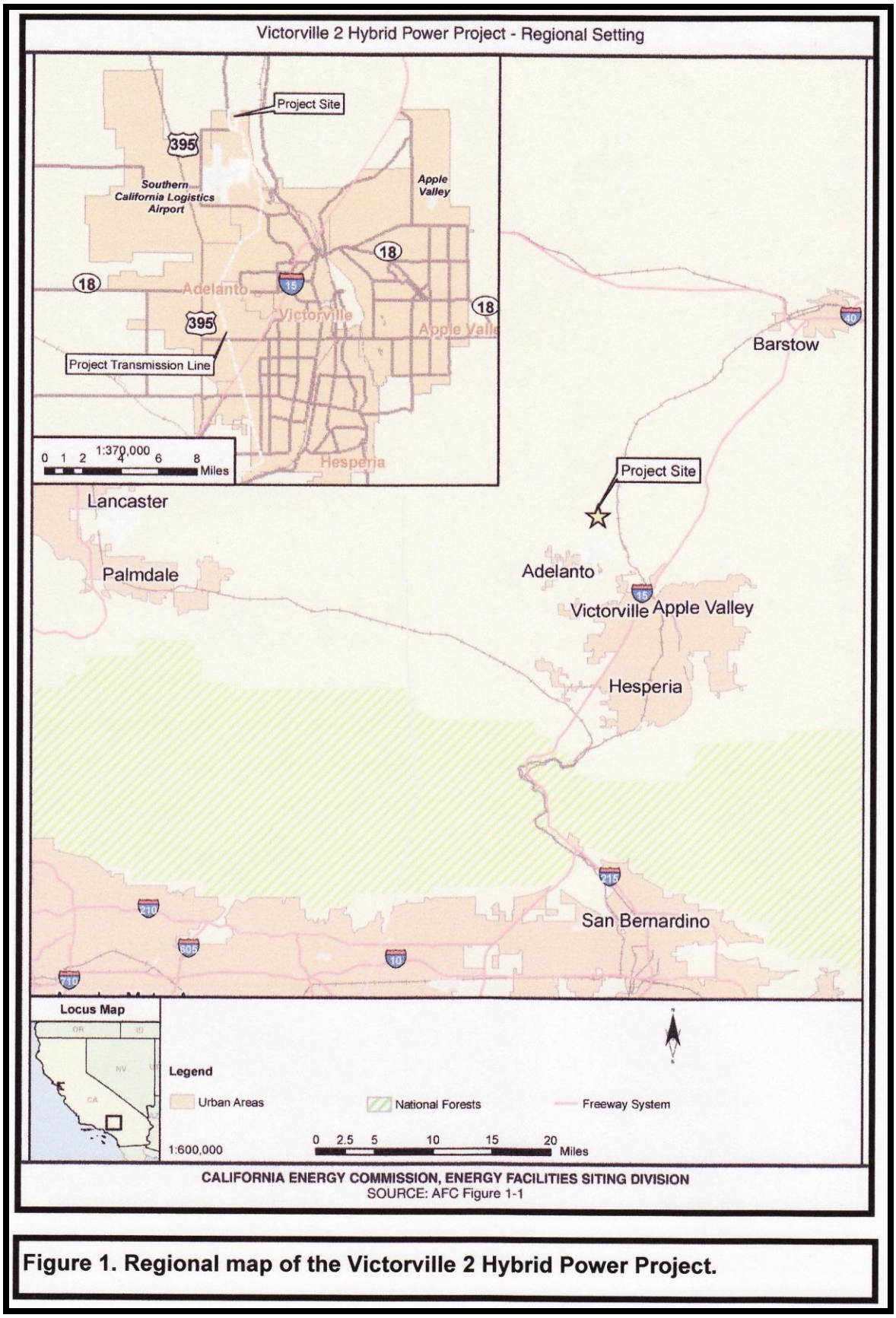


Figure 1. Regional map of the Victorville 2 Hybrid Power Project.

2.0 ENVIRONMENTAL CONSEQUENCES OF THE PROJECT

2.1 Temporary and Permanent Impacts

2.1.1 Analysis of Impacts Due To Salt and Nitrogen Deposition.

Further analyses of the potential for impacts from salts emitted from the Project cooling tower and from nitrogen emitted from the Project combustion equipment, as well as linear utility location relative to drainages, have been added to clarify the analysis provided in the BA and BA addendum previously prepared for the Project.

While small amounts of salts will be present in evaporative mist emitted by the proposed power plant's cooling tower, these salts are unlikely to adversely affect habitat used by the desert tortoise, MGS, burrowing owl, least bell's vireo, southwestern willow flycatcher, Swainson's hawk or western yellow-billed cuckoo over the short or long term. This conclusion is based on the Project's air quality impact assessment finding that only a very small amount of salt (<0.09 $\mu g/m^3$) would potentially reach that portion of the Mojave River situated closest to the Project. A virtually undetectable amount of salt (<0.01 $\mu g/m^3$) from mist drifting from the cooling tower would potentially reach habitat federally designated as critical habitat for the southwestern willow flycatcher.

Even on a long-term basis, only a very small amount of salt from the proposed cooling tower would be deposited within the Mojave River. As the limited and deciduous vegetation occurring in this reach of the Mojave River is known to be adapted to the natural salt deposition/buildup produced by in an arid riparian environment, it can be concluded that this aspect of the Project is unlikely to adversely affect habitat used by the above listed avian species. The FWS (2008) has concurred with this analysis in the Biological Assessment (1-8-07-F-67) issued for the Project. A discussion of the analysis of salts from the cooling tower is contained in Exhibit B.

Project emissions are also expected to contain minute amounts of nitrogen. The combustion turbine generators and other combustion equipment associated with the Project will emit up to 108 tons per year of NOx emissions, due to the combustion of natural gas and diesel fuels. Of these total NOx emissions, 32.9 tons of nitrogen per year would be the maximum amount of nitrogen deposited on soils situated immediately adjacent to the Project site. Desert substrates are generally poor in nitrogen; an increased level of nitrogen could promote the growth and spread of non-native plants, which are generally adapted to a higher level of soil nitrogen than native plants.

While nitrogen deposition may benefit non-native annual grasses occurring in the immediate vicinity of the Project to a small degree, this deposition is not expected to extend very far from the plant's power block (where the combustion sources are located) or substantially benefit non-native plants already growing in the vicinity to the detriment of native plant species. As specified in the BA Addendum, the value of desert tortoise, MGS and burrowing owl habitat in proximity to the Project is not expected to be substantially diminished (Exhibit C).

Similarly, nitrogen emissions anticipated as a result of Project operations are also not expected to influence Mojave River riparian vegetation that could potentially be used by least Bell's vireo, southwestern willow flycatcher, Swainson's hawk and western yellow-billed cuckoo (Exhibit C).

2.1.2 Avoidance of Drainages

The Project's access roads and linear utilities have been designed and/or routed to largely avoid drainages. A few existing road segments within washes would be used to access some transmission line tower and 39 steel pole locations associated with the 115kV transmission line in linear utility feature segment 3. However, no new towers, poles, road spurs/improvements or any additional surface disturbance would be created within drainages occurring in the Project area, as graphically depicted in Exhibit A.

Transmission line alignments located in proximity to drainages have been designed to span streambeds. Horizontal drilling, with pipeline placement beneath streambeds, is to be used in the few instances where pipelines would cross drainages. Therefore, as described in the BA (AMEC 2007) and BA Addendum (AMEC 2008), no streambeds or any drainage feature would be affected by the Project.

2.1.3 Avoidance of Impacts to Avian Species in the Mojave River

While detectable impacts to riparian vegetation in the Mojave River as a result of the Project are not anticipated, there is potentially suitable avian nesting (and roosting) habitat within the Mojave River situated east of the potable and reclaimed water pipeline alignments (Exhibit A).

The closest pipeline (reclaimed water) surface disturbance would be situated at a distance of 70 feet from the entrenched river corridor. Portions of surface disturbance work associated with the potable water pipeline to be located along Perimeter Road, would be situated at a similar, but greater, distance (150 feet plus) from the entrenched river corridor.

Although no listed avian species has been reported as nesting or roosting in this proximal portion of the Mojave River, a nesting season avoidance measure has been incorporated into Project mitigation (AMEC 2007). Accordingly, all Project activities are scheduled to avoid the avian nesting season (February 15 through August 31).

Outside of this potential nesting season, qualified biological monitors are to be onsite in Project areas proximal to the Mojave River to ensure linear utility feature installation does not impact any migrating special status species which may be disturbed by construction activities (AMEC 2007).

Consequently, the Project is not anticipated to affect potential nesting or roosting by riparian-plant community bird species (i.e., least Bell's vireo, southwestern willow flycatcher, etc.).

2.1.4 Project Impact Acreage

In addition to the power plant, two primary staging areas and pipeline impact acreage, the Project involves surface disturbance acreage associated with the creation of new spur roads to a number of 230 kV transmission line tower sites, transmission tower and pole installation areas, minor road improvements outside of drainages, as well as line-pulling areas in primarily previously disturbed areas to install transmission lines (AMEC 2007, 2008).

The updated entirety of this Project impact, as outlined in Tables 1 to 3 of the BA Addendum (AMEC 2008), will result in the temporary and permanent loss of 438.5 acres of suitable habitat for the desert tortoise. As additionally described in the BA (AMEC 2007) and BA Addendum (AMEC 2008), MGS presence has been assumed for the entire Project area. Consequently, the temporary and permanent loss of 438.5 acres of suitable desert tortoise habitat also represents the temporary and permanent loss of 438.5 acres of suitable habitat for the MGS, as suitable habitat in the region for these two species is similar.

2.2 Cumulative Impacts

Cumulative impacts for the Project have been assessed in the previously-prepared BA (AMEC 2007) and BA Addendum (AMEC 2008).

3.0 IMPACT MINIMIZATION AND MITIGATION

Measures designed to minimize and/or mitigate impacts have been previously identified in the BA (AMEC 2007) and BA Addendum (AMEC 2008). These measures have been fully incorporated into the Project. This includes desert tortoise handling specifications outlined in the "*Victorville 2 Hybrid Power Project Desert Tortoise (Gopherus agassizii) Translocation Plan*" (AMEC 2008), attached as Exhibit D of this BA Second Addendum.

4.0 CONCLUSION

This BA Second Addendum has incorporated additional analysis and support documents (Exhibits A-D) in response to CDFG comments on the previously prepared BA (AMEC 2007) and BA Addendum (AMEC 2008) for the Victorville 2 Hybrid Power Project.

5.0 LITERATURE CITED AND REFERENCES

AMEC Earth & Environmental, Inc. (AMEC). 2007. Victorville 2 Hybrid Power Project Biological Assessment. Document on file with the California Energy Commission, Sacramento, California; the City of Victorville Planning Department, Victorville California; the U.S, Environmental Protection Agency, San Francisco, California; the U.S. Fish and Wildlife Service, Ventura Field Office, Ventura, California; and submitted to the California Department of Fish and Game, Victorville, California.

AMEC Earth & Environmental, Inc. (AMEC). 2008. Victorville 2 Hybrid Power Project Biological Assessment Addendum. Document on file with the California Energy Commission, Sacramento, California; the City of Victorville Planning Department, Victorville California; the U.S, Environmental Protection Agency, San Francisco, California; the U.S. Fish and Wildlife Service, Ventura Field Office, Ventura, California; and submitted to the California Department of Fish and Game, Victorville, California.

AMEC Earth & Environmental, Inc. (AMEC). 2008. Victorville 2 Hybrid Power Project Desert Tortoise (*Gopherus agassizii*) Translocation Plan. Document on file with the California Energy Commission, Sacramento, California; the City of Victorville Planning Department, Victorville California; the U.S, Environmental Protection Agency, San Francisco, California; the U.S. Fish and Wildlife Service, Ventura Field Office, Ventura, California; and submitted to the California Department of Fish and Game, Victorville, California.

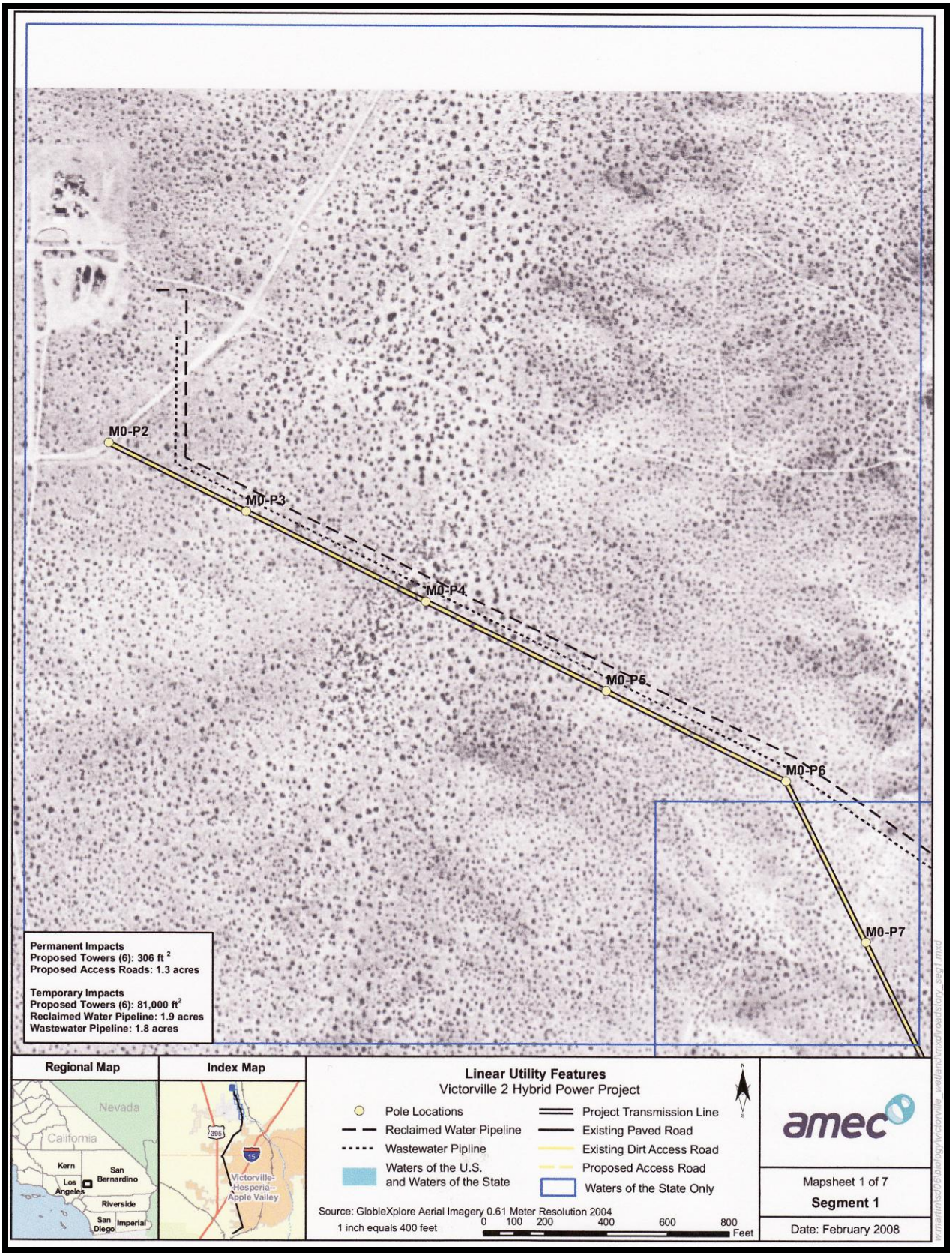
U.S. Fish and Wildlife Service (FWS). 2008. Biological Opinion for the Victorville 2 Hybrid Power Project, San Bernardino County, California (1-8-07-F-67). Document on file with the California Energy Commission, Sacramento, California; the City of Victorville Planning Department, Victorville California; the U.S, Environmental Protection Agency, San Francisco, California; the U.S. Fish and Wildlife Service, Ventura Field Office, Ventura, California; and submitted to the California Department of Fish and Game, Victorville, California.

EXHIBIT A

Victorville 2 Hybrid Power Project
Linear Utility Segment Maps

Exhibit A1.

Victorville 2 Hybrid Power Project
Linear Utility Segment 1


M0-P2
M0-P3
M0-P4
M0-P5
M0-P6
M0-P7
Permanent Impacts
Proposed Towers (6): 306 ft 2
Proposed Access Roads: 1.3 acres
Temporary Impacts
Proposed Towers (6): 81,000 ft2
Reclaimed Water Pipeline: 1.9 acres
Wastewater Pipeline: 1.8 acres
Regional Map
Nevada
California
Kern
San Bernardino
Los Angeles
Riverside
San Diego
Imperial
Index Map
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Victorville-Hesperia-Apple Valley
Linear Utility Features
Victorville 2 Hybrid Power Project
Pole Locations
Reclaimed Water Pipeline
Wastewater Pipline
Waters of the U.S. and Waters of the State
Project Transmission Line
Existing Paved Road
Existing Dirt Access Road
Proposed Access Road
Waters of the State Only
Source: GlobleXplore Aerial Imagery 0.61 Meter Resolution 2004
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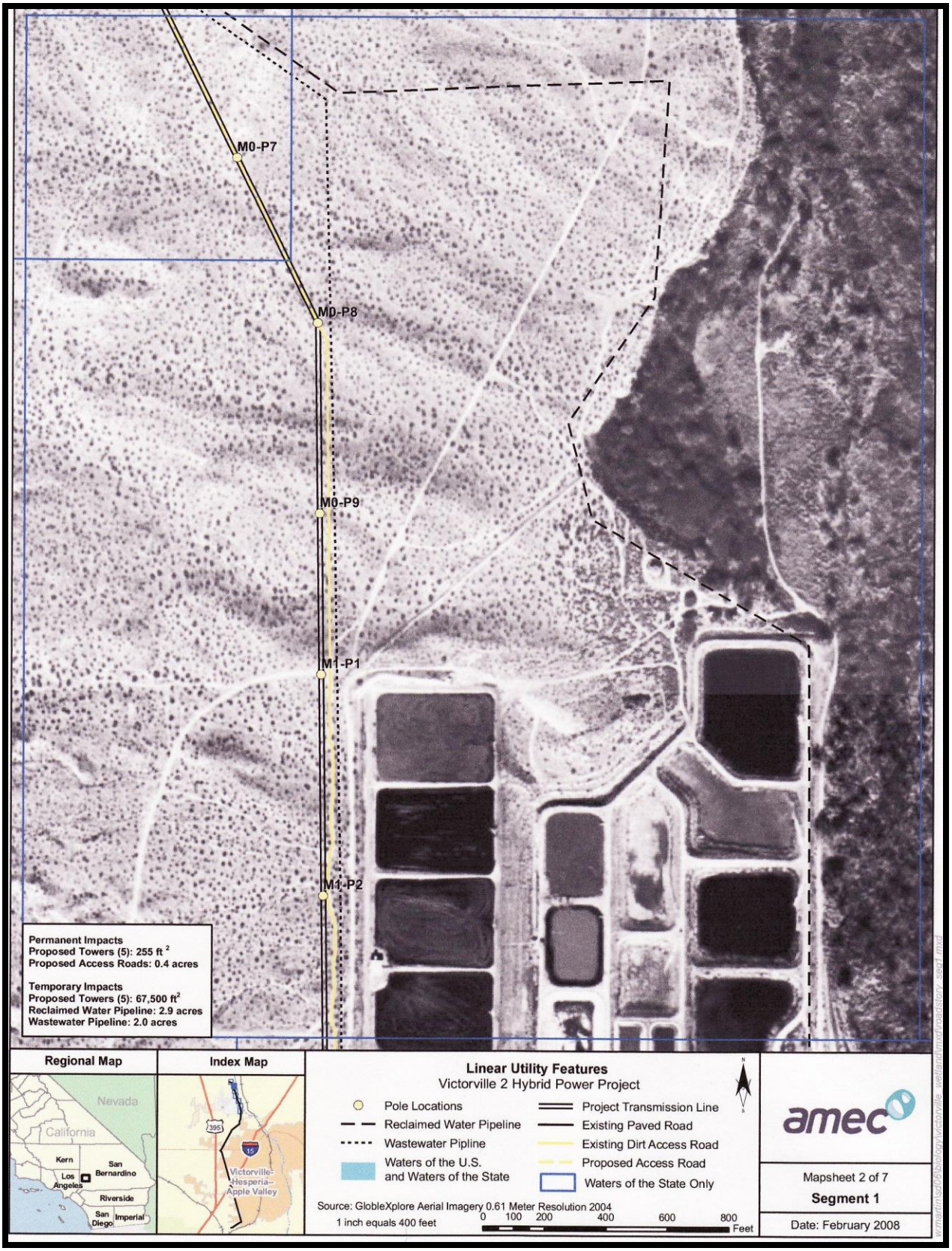
Feet
Mapsheet 1 of 7
Segment 1
Date: February 2008


M0-P7
M0-P8
M0-P9
M1-P1
M1-P2
Permanent Impacts
Proposed Towers (5): 255 ft 2
Proposed Access Roads: 0.4 acres
Temporary Impacts
Proposed Towers (5): 67,500 ft2
Reclaimed Water Pipeline: 2.9 acres
Wastewater Pipeline: 2.0 acres
Regional Map
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Los Angeles
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San Diego
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Existing Dirt Access Road
Proposed Access Road
Waters of the State Only
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Feet
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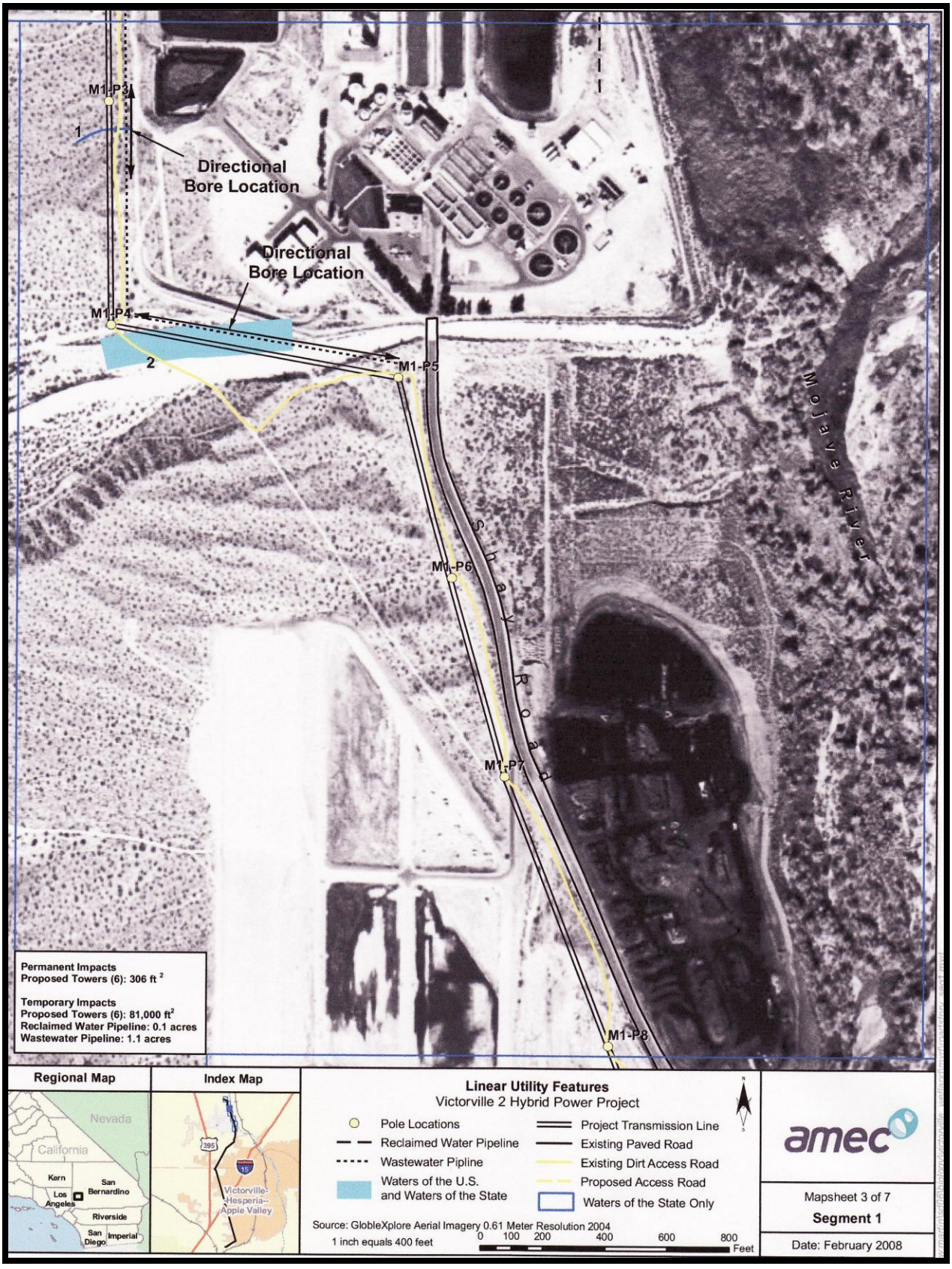
Mapsheet 2 of 7
Segment 1
Date: February 2008


M1-P3
1
Directional
Bore Location
Directional
Bore Location
M1-P4
2
M1-P5
M1-P6
M1-P7
M1-P8
Shay Road
Mojave River
Permanent Impacts
Proposed Towers (6): 306 ft 2
Temporary Impacts
Proposed Towers (6): 81,000 ft2
Reclaimed Water Pipeline: 0.1 acres
Wastewater Pipeline: 1.1 acres
Regional Map
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San Bernardino
Los Angeles
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San Diego
Imperial
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Wastewater Pipline
Waters of the U.S. and Waters of the State
Project Transmission Line
Existing Paved Road
Existing Dirt Access Road
Proposed Access Road
Waters of the State Only
Source: GlobleXplore Aerial Imagery 0.61 Meter Resolution 2004
1 inch equals 400 feet
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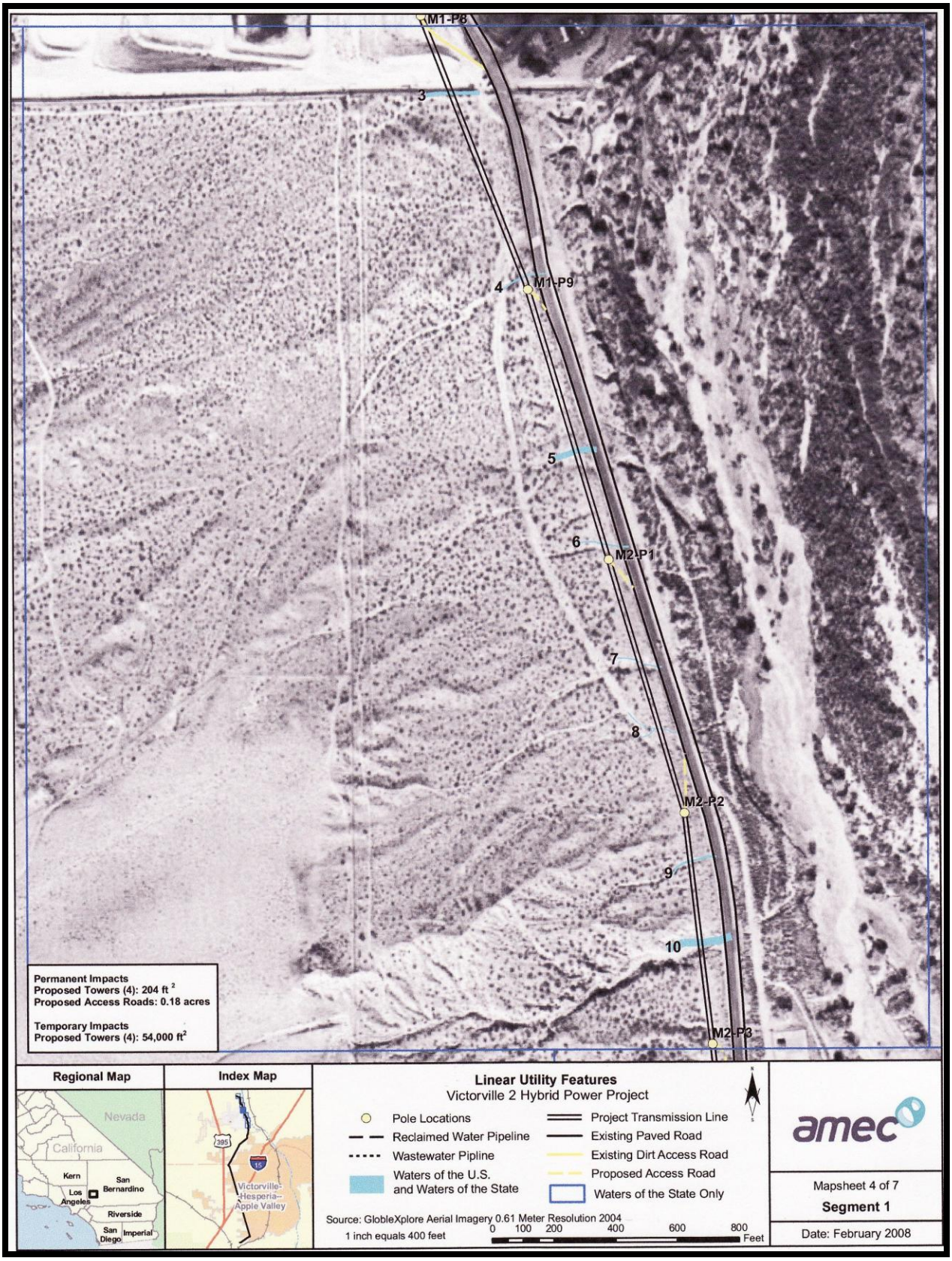
Feet
Mapsheet 3 of 7
Segment 1
Date: February 2008


M1-P8
3
4
M1-P9
5
6
M2-P1
7
8
M2-P2
9
10
M2-P3
Permanent Impacts
Proposed Towers (4): 204 ft 2
Proposed Access Roads: 0.18 acres
Temporary Impacts
Proposed Towers (4): 54,000 ft2
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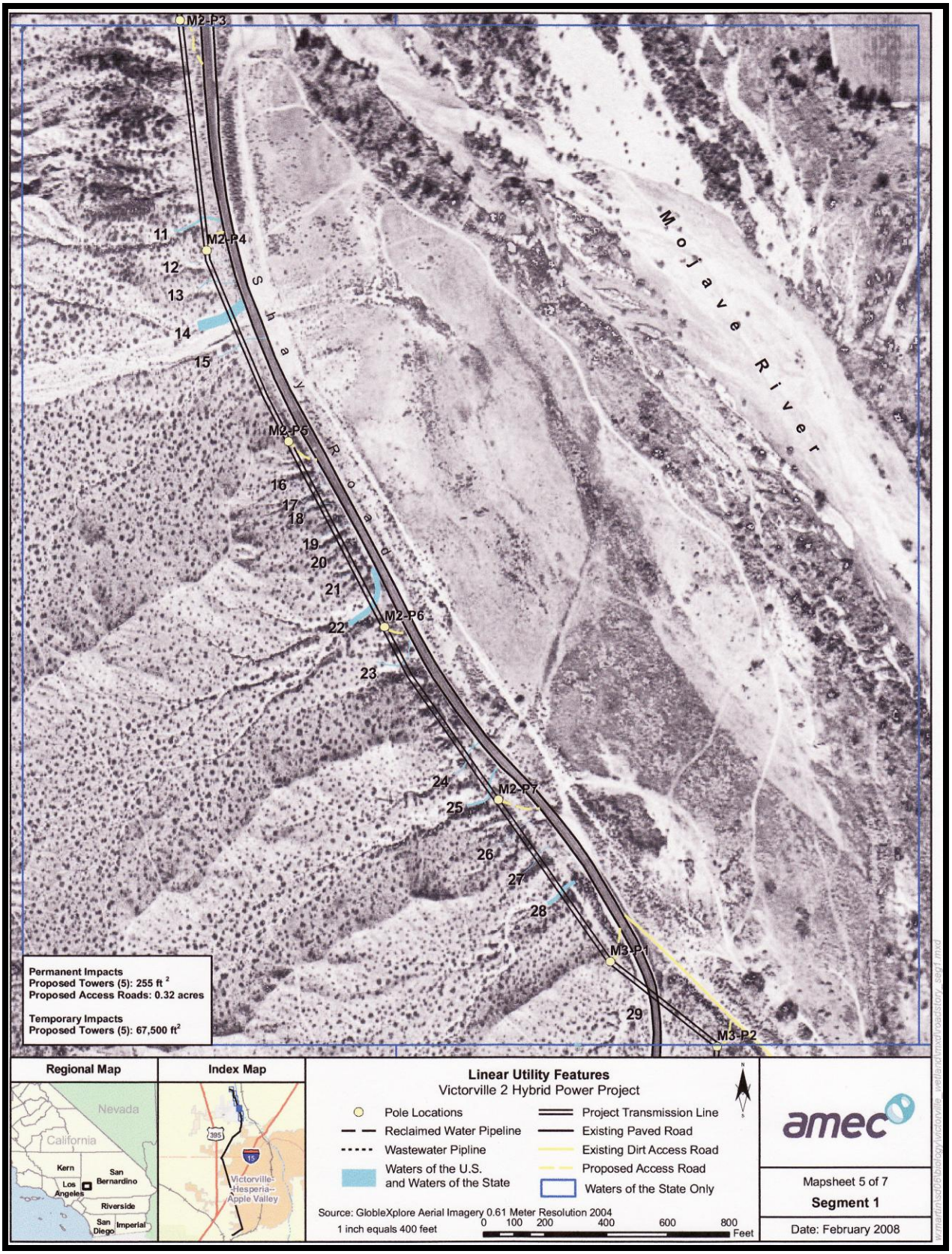
Existing Dirt Access Road
Proposed Access Road
Waters of the State Only
Source: GlobleXplore Aerial Imagery 0.61 Meter Resolution 2004
1 inch equals 400 feet
0 100 200 400 600 800 Feet
amec
Mapsheet 4 of 7
Segment 1
Date: February 2008


M2-P3
M2-P4
M2-P5
M2-P6
M2-P7
M3-P1
M3-P2
11
12
13
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15
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21
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23
24
25
26
27
28
29
S h a y R o a d
M o j a v e R i v e r
Permanent Impacts
Proposed Towers (5): 255 ft 2
Proposed Access Roads: 0.32 acres
Temporary Impacts
Proposed Towers (5): 67,500 ft2
Regional Map
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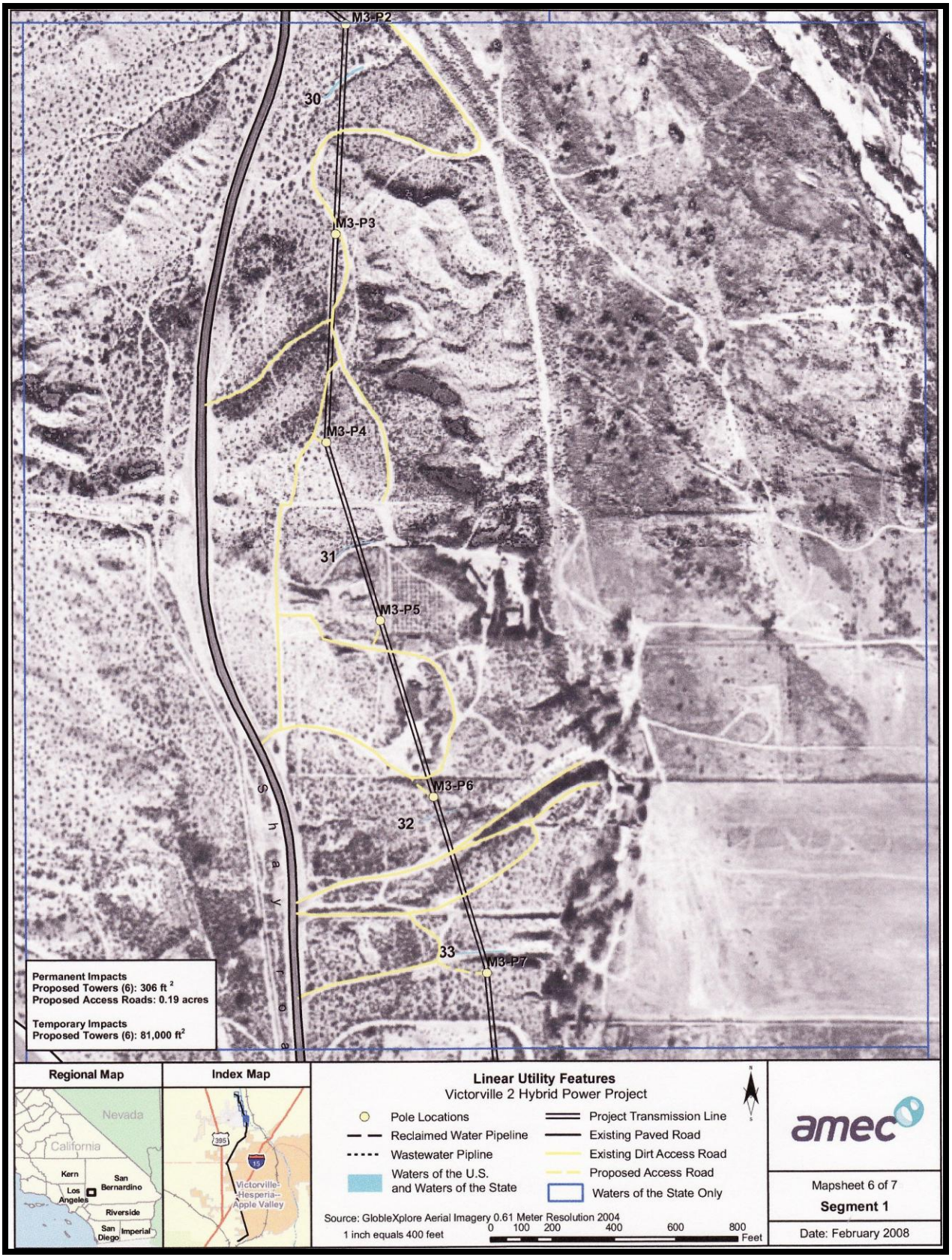
Existing Dirt Access Road
Proposed Access Road
Waters of the State Only
Source: GlobleXplore Aerial Imagery 0.61 Meter Resolution 2004
1 inch equals 400 feet
0 100 200 400 600 800 Feet
amec
Mapsheet 5 of 7
Segment 1
Date: February 2008


M3-P2
30
M3-P3
M3-P4
31
M3-P5
M3-P6
32
33
M3-P7
Shay Trona
Permanent Impacts
Proposed Towers (6): 306 ft 2
Proposed Access Roads: 0.19 acres
Temporary Impacts
Proposed Towers (6): 81,000 ft2
Regional Map
Nevada
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Existing Paved Road
Existing Dirt Access Road
Proposed Access Road
Waters of the State Only
Source: GlobleXplore Aerial Imagery 0.61 Meter Resolution 2004
1 inch equals 400 feet
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Feet
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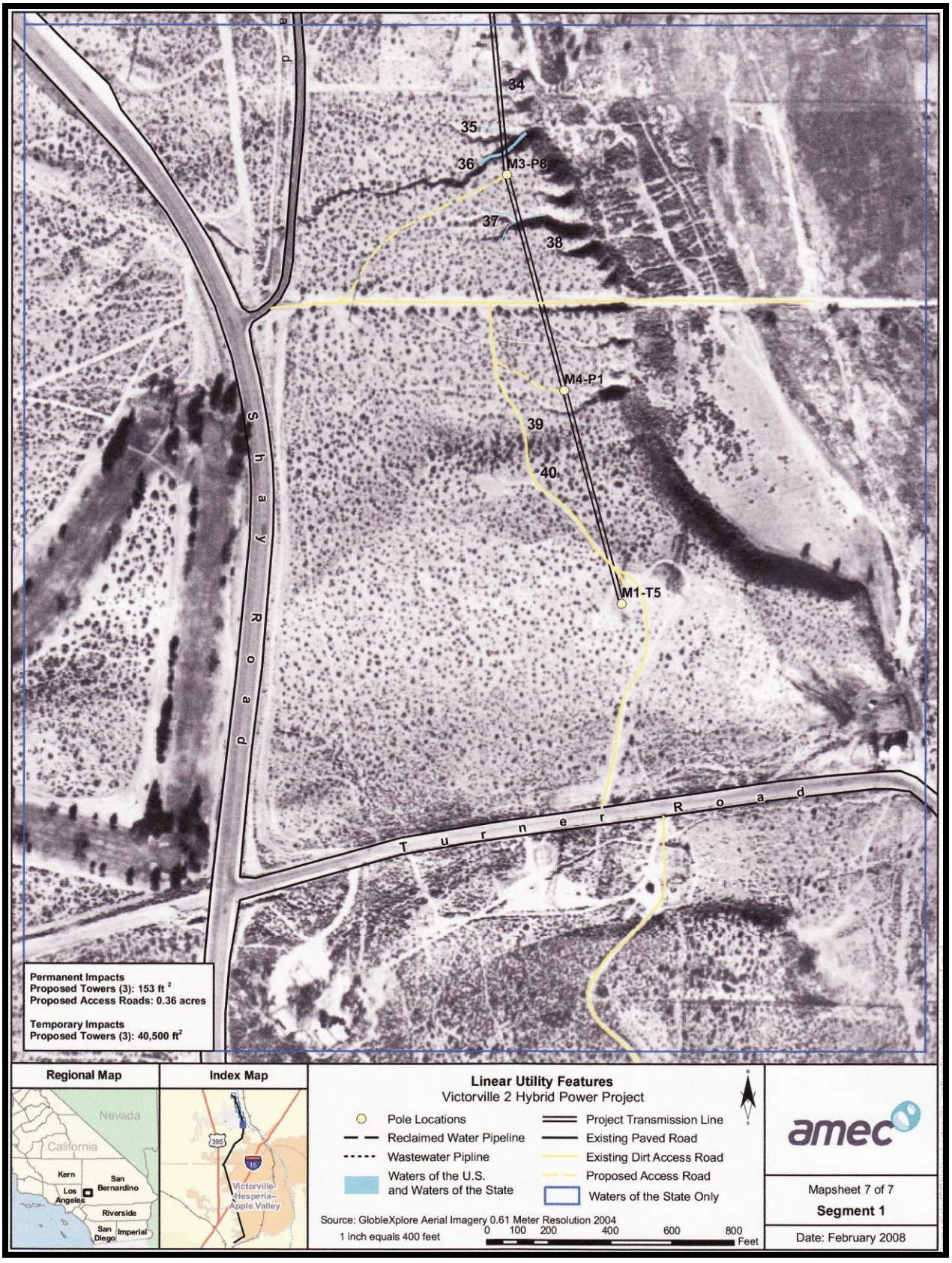
Mapsheet 6 of 7
Segment 1
Date: February 2008


34
35
36
M3-P8
37
38
M4-P1
39
40
M1-T5
Shay Road
Turner Road
Permanent Impacts
Proposed Towers (3): 153 ft 2
Proposed Access Roads: 0.36 acres
Temporary Impacts
Proposed Towers (3): 40,500 ft2
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Existing Dirt Access Road
Proposed Access Road
Waters of the State Only
Source: GlobleXplore Aerial Imagery 0.61 Meter Resolution 2004
1 inch equals 400 feet
0 100 200 400 600 800 Feet
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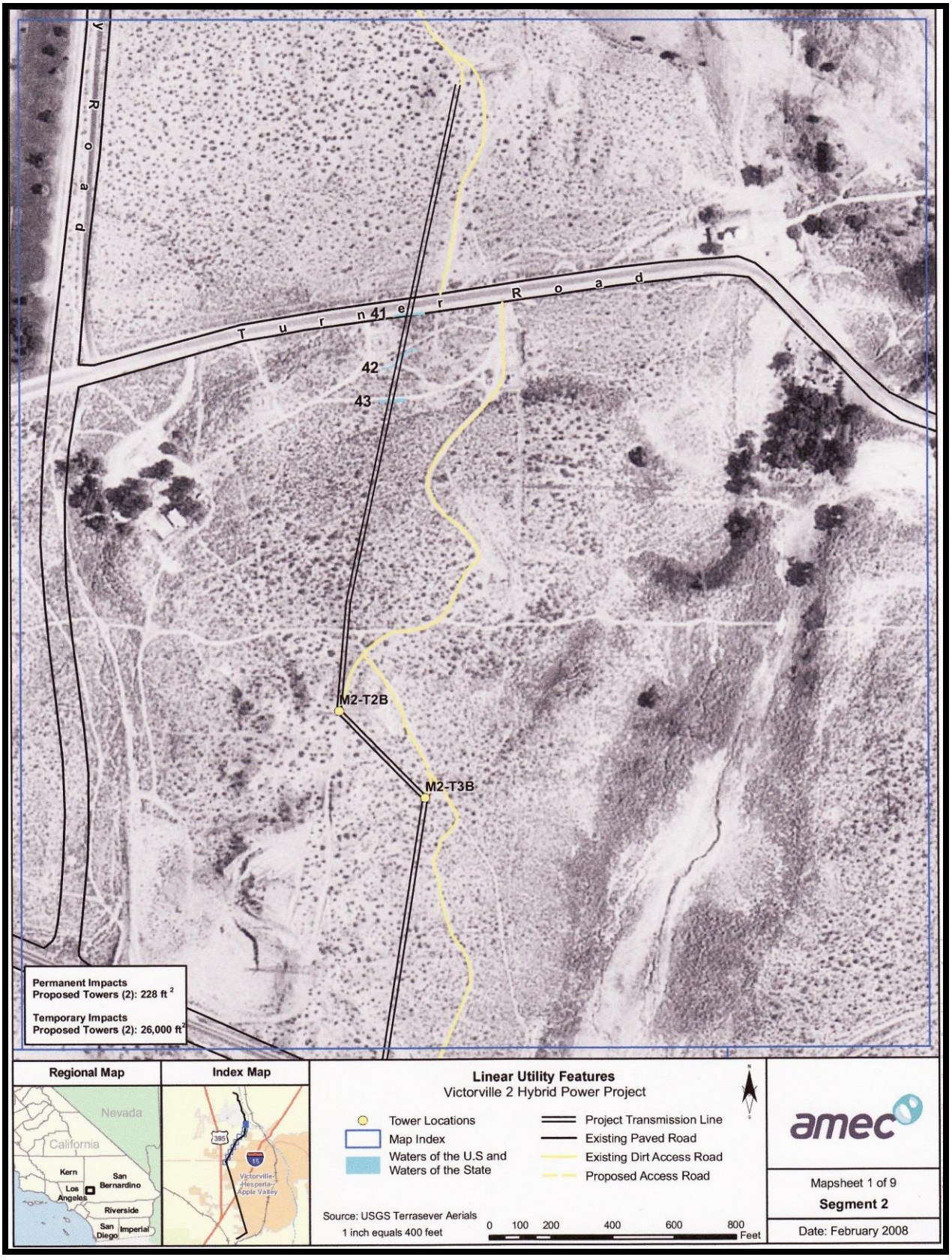
Mapsheet 7 of 7
Segment 1
Date: February 2008

Exhibit A2.

Victorville 2 Hybrid Power Project
Linear Utility Segment 2


y
R o a d
T u r n e r R o a d
41
42
43
M2-T2B
M2-T3B
Permanent Impacts
Proposed Towers (2): 228 ft 2
Temporary Impacts
Proposed Towers (2): 26,000 ft2
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Existing Dirt Access Road
Proposed Access Road
Source: USGS Terrasever Aerials
1 inch equals 400 feet
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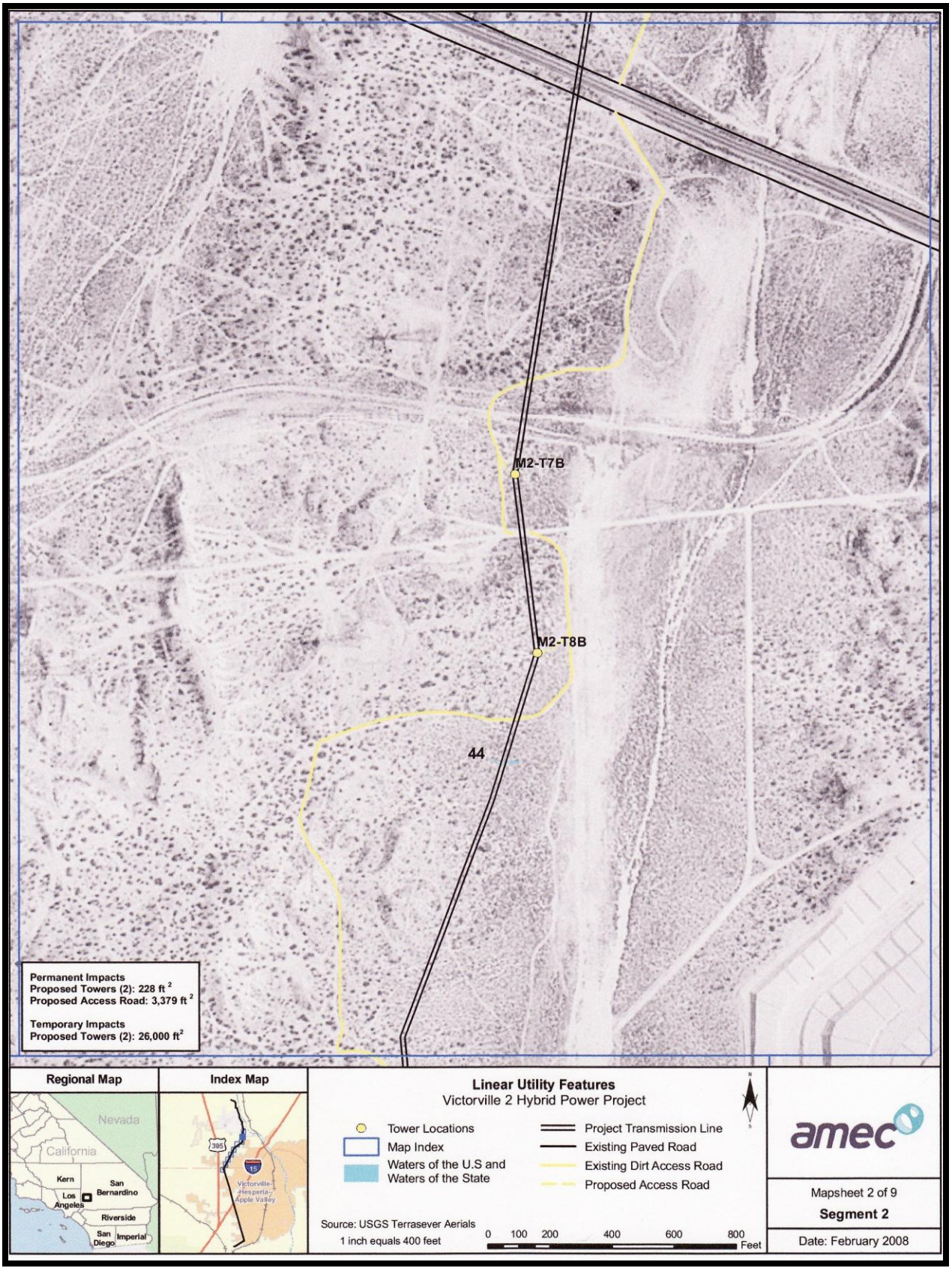
amec
Mapsheet 1 of 9
Segment 2
Date: February 2008


M2-T7B
M2-T8B
44
Permanent Impacts
Proposed Towers (2): 228 ft 2
Proposed Access Road: 3,379 ft 2
Temporary Impacts
Proposed Towers (2): 26,000 ft2
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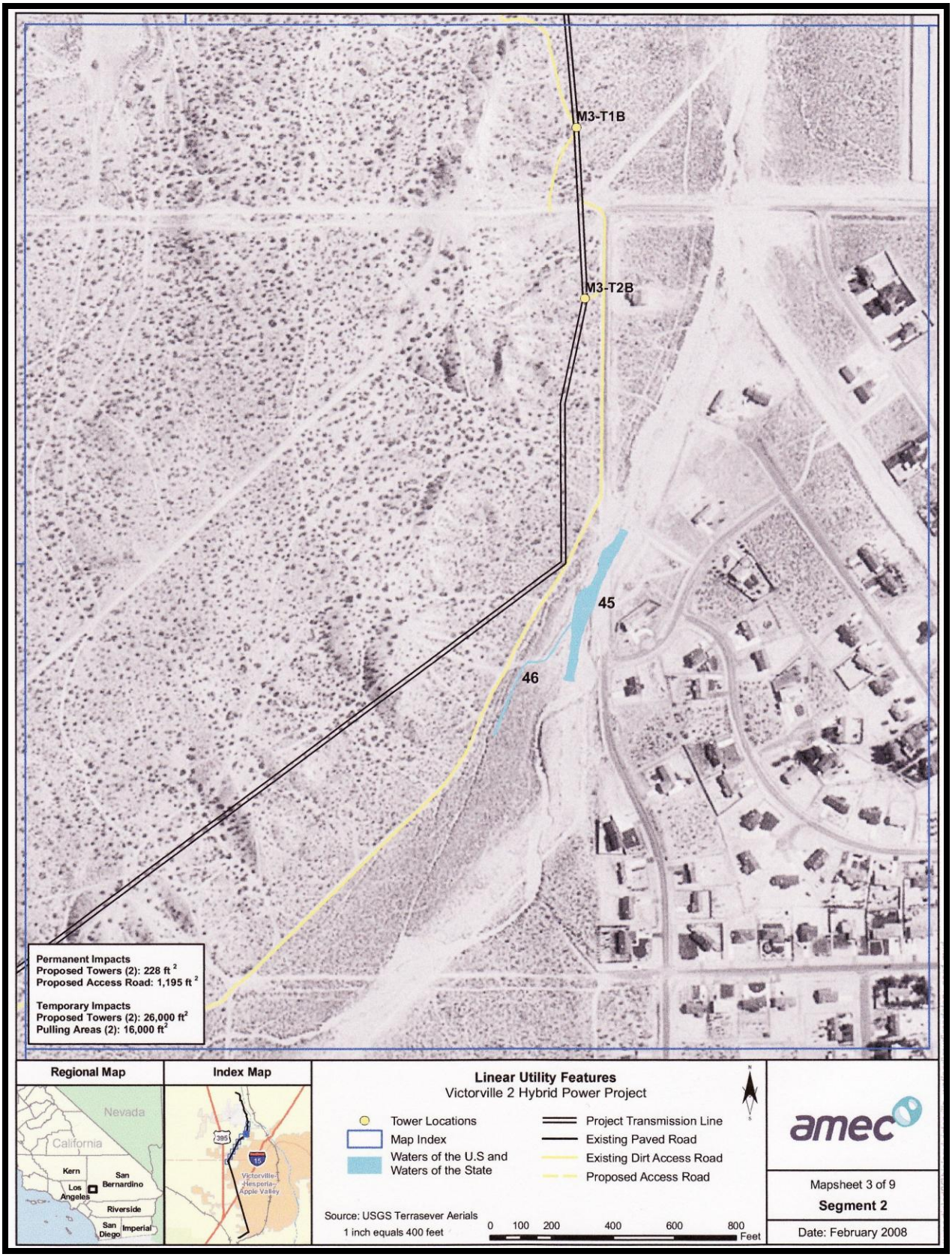
Existing Dirt Access Road
Proposed Access Road
Source: USGS Terrasever Aerials
1 inch equals 400 feet
0 100 200 400 600 800 Feet
Mapsheet 2 of 9
Segment 2
Date: February 2008


M3-T1B
M3-T2B
45
46
Permanent Impacts
Proposed Towers (2): 228 ft 2
Proposed Access Road: 1,195 ft 2
Temporary Impacts
Proposed Towers (2): 26,000 ft2
Pulling Areas (2): 16,000 ft2
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Proposed Access Road
Source: USGS Terrasever Aerials
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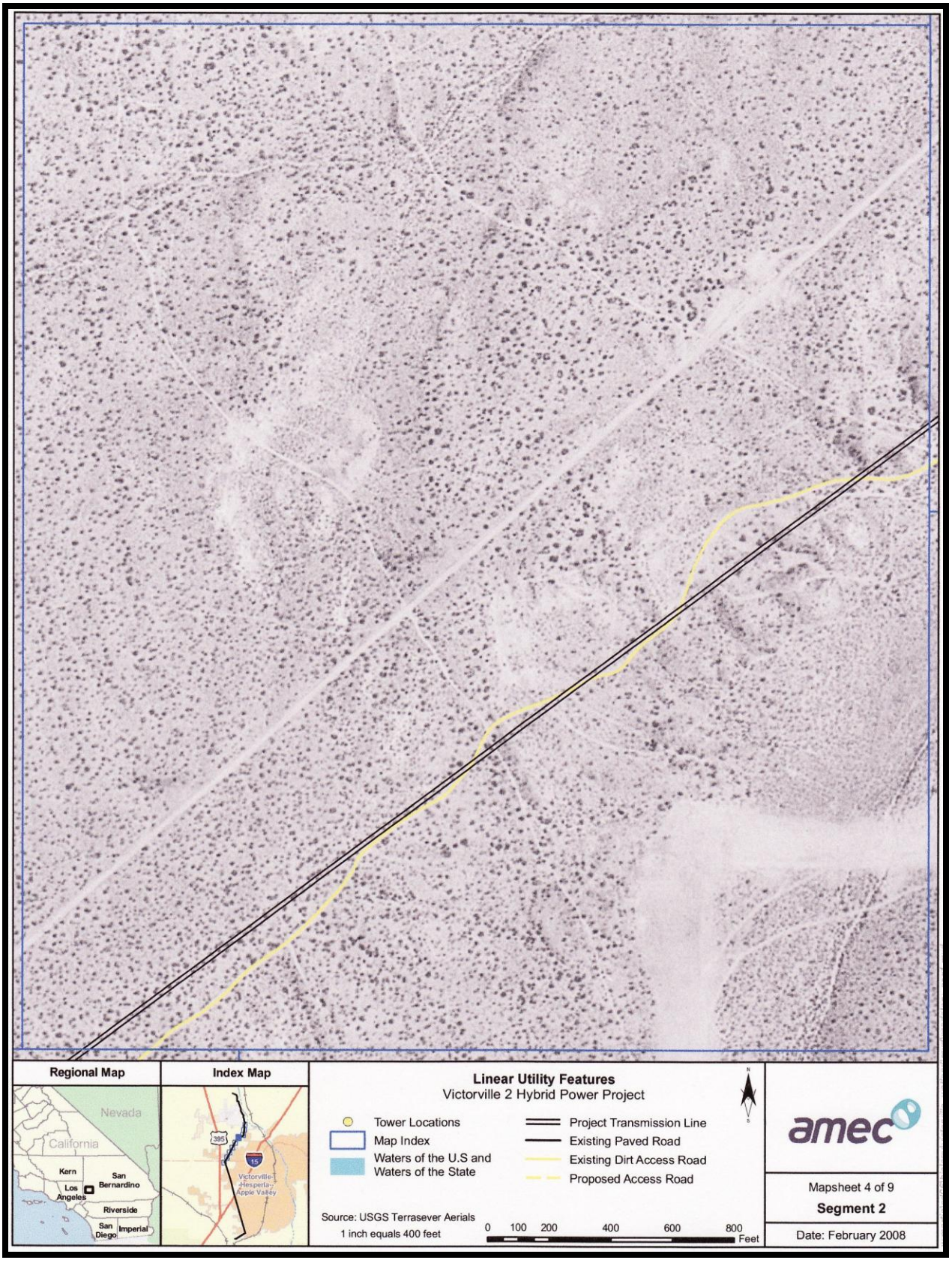
Feet
Mapsheet 3 of 9
Segment 2
Date: February 2008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Victorville-Hesperia-Apple Valley
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Existing Dirt Access Road
Proposed Access Road
Source: USGS Terrasever Aerials
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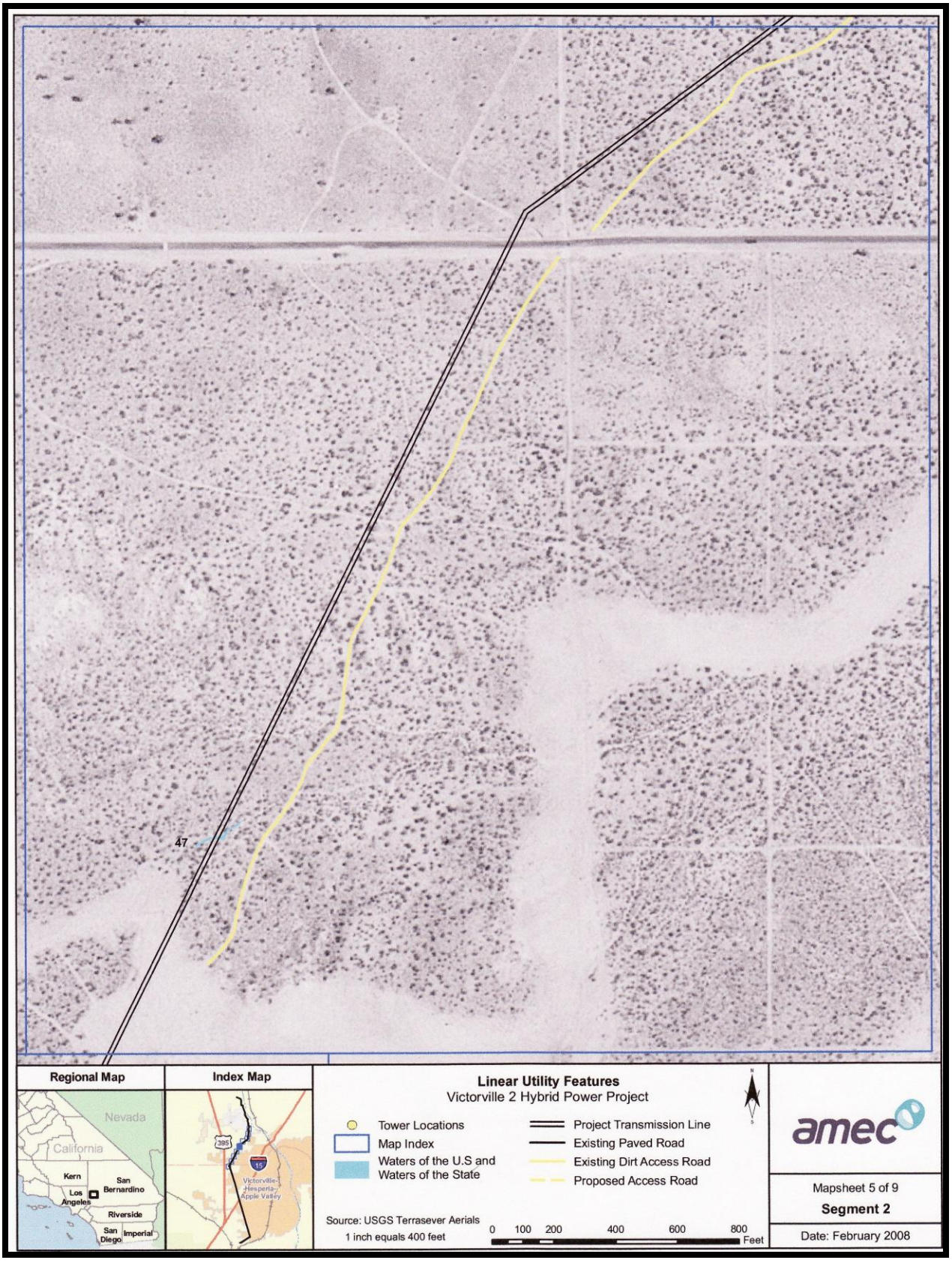
Feet
Mapsheet 4 of 9
Segment 2
Date: February 2008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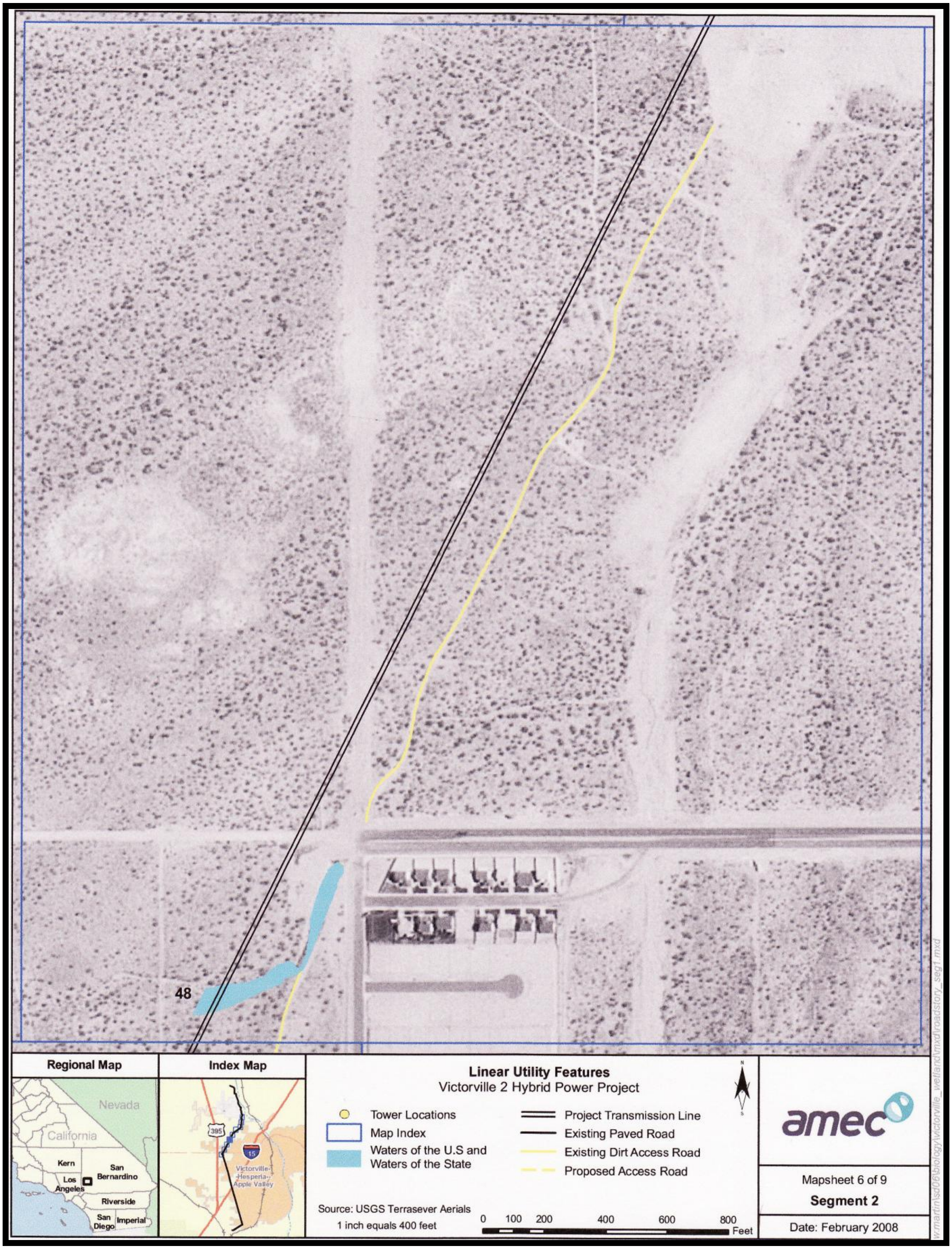
Existing Paved Road
Existing Dirt Access Road
Proposed Access Road
Source: USGS Terrasever Aerials
1 inch equals 400 feet
0 100 200 400 600 800 Feet
amec
Mapsheet 5 of 9
Segment 2
Date: February 2008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Regional Map
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Victorville-Hesperia-Apple Valley
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Waters of the U.S and Waters of the State
Project Transmission Line
Existing Paved Road
Existing Dirt Access Road
Proposed Access Road
Source: USGS Terrasever Aerials
1 inch equals 400 feet
0 100 200 400 600 800 Feet
amec
Mapsheet 6 of 9
Segment 2
Date: February 2008
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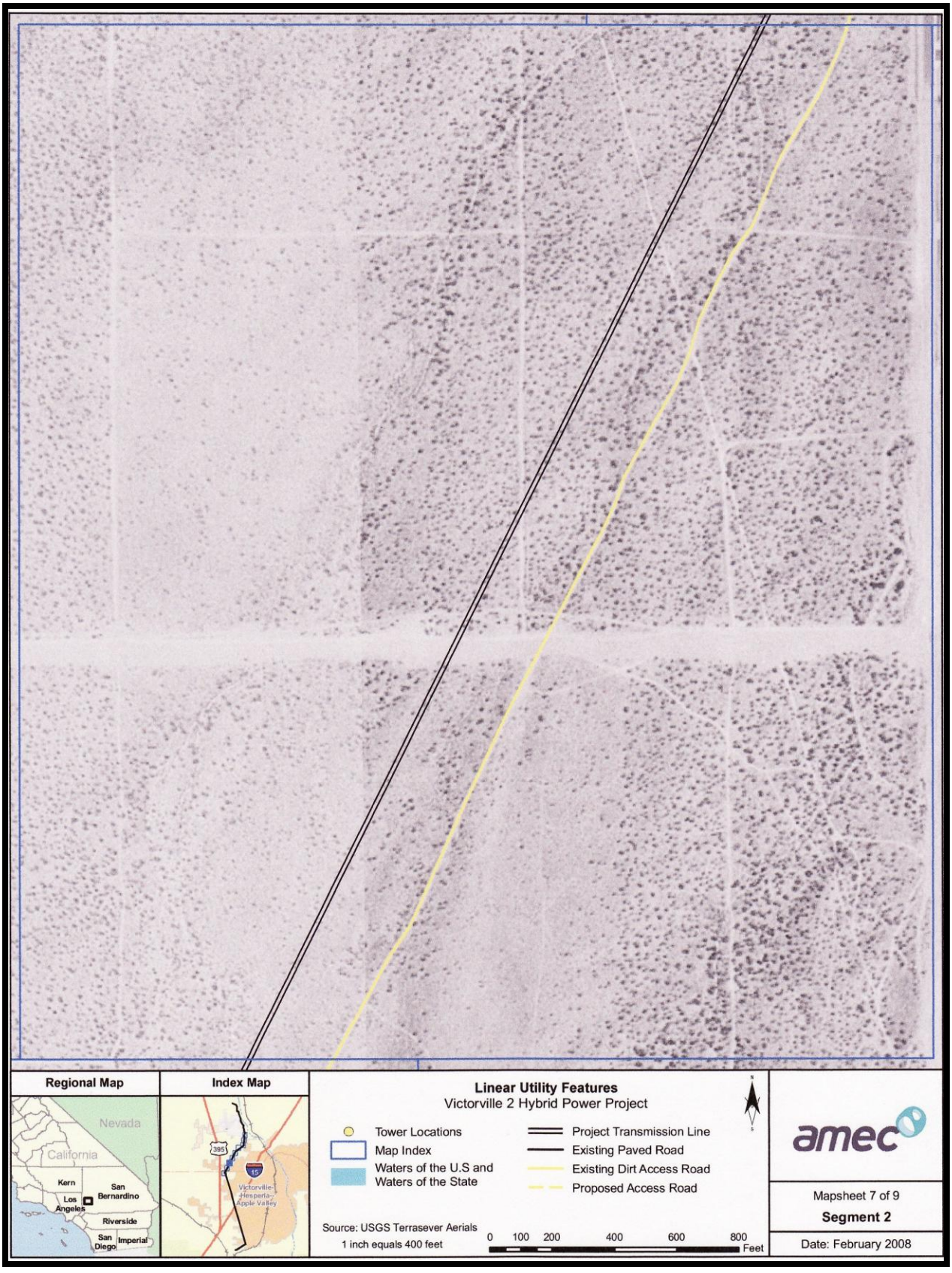
Regional Map
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Victorville-Hesperia-Apple Valley
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Proposed Access Road
Source: USGS Terrasever Aerials
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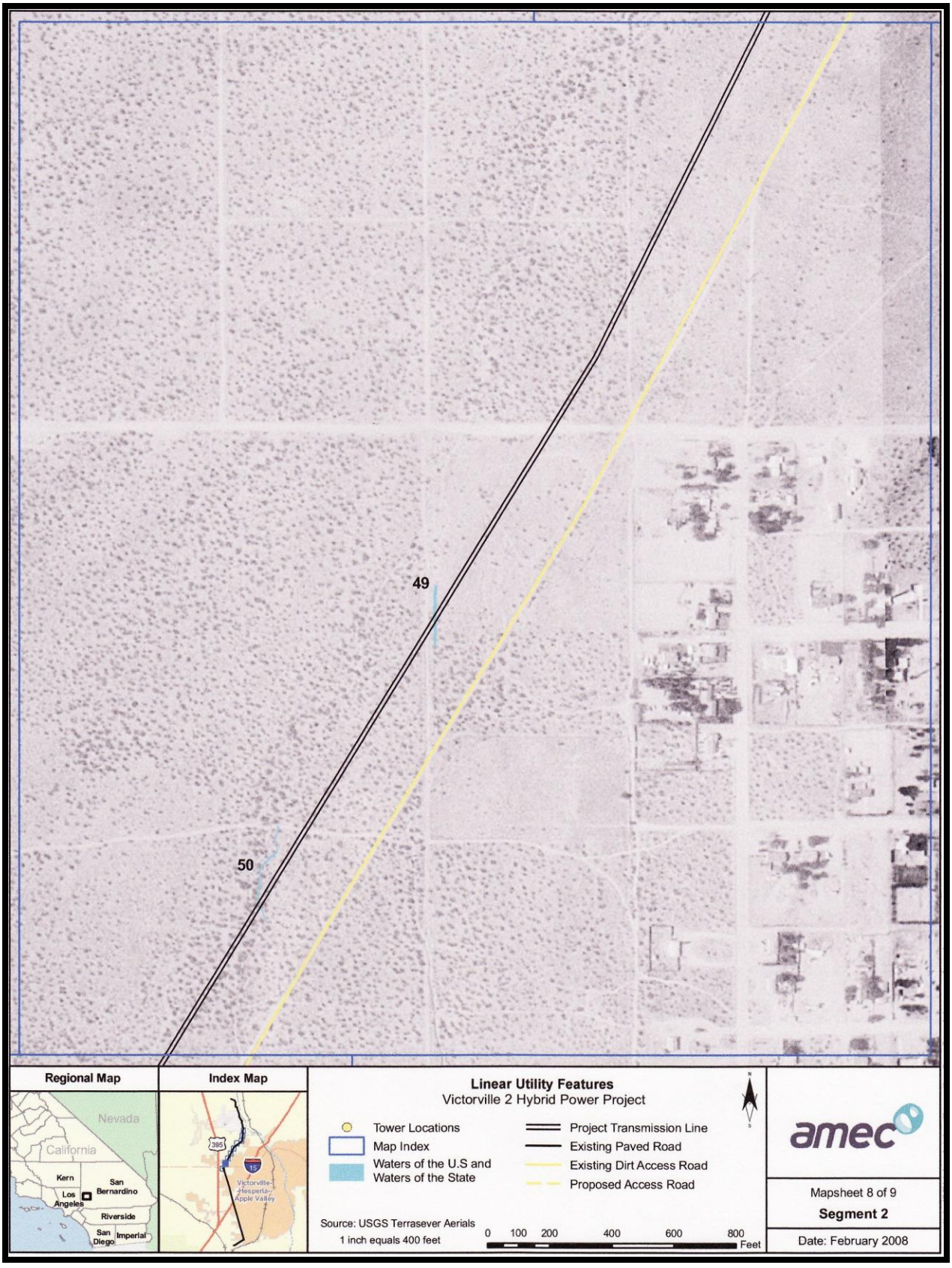
0 100 200 400 600 800
Feet
Mapsheet 7 of 9
Segment 2
Date: February 2008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50
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Existing Dirt Access Road
Proposed Access Road
Source: USGS Terrasever Aerials
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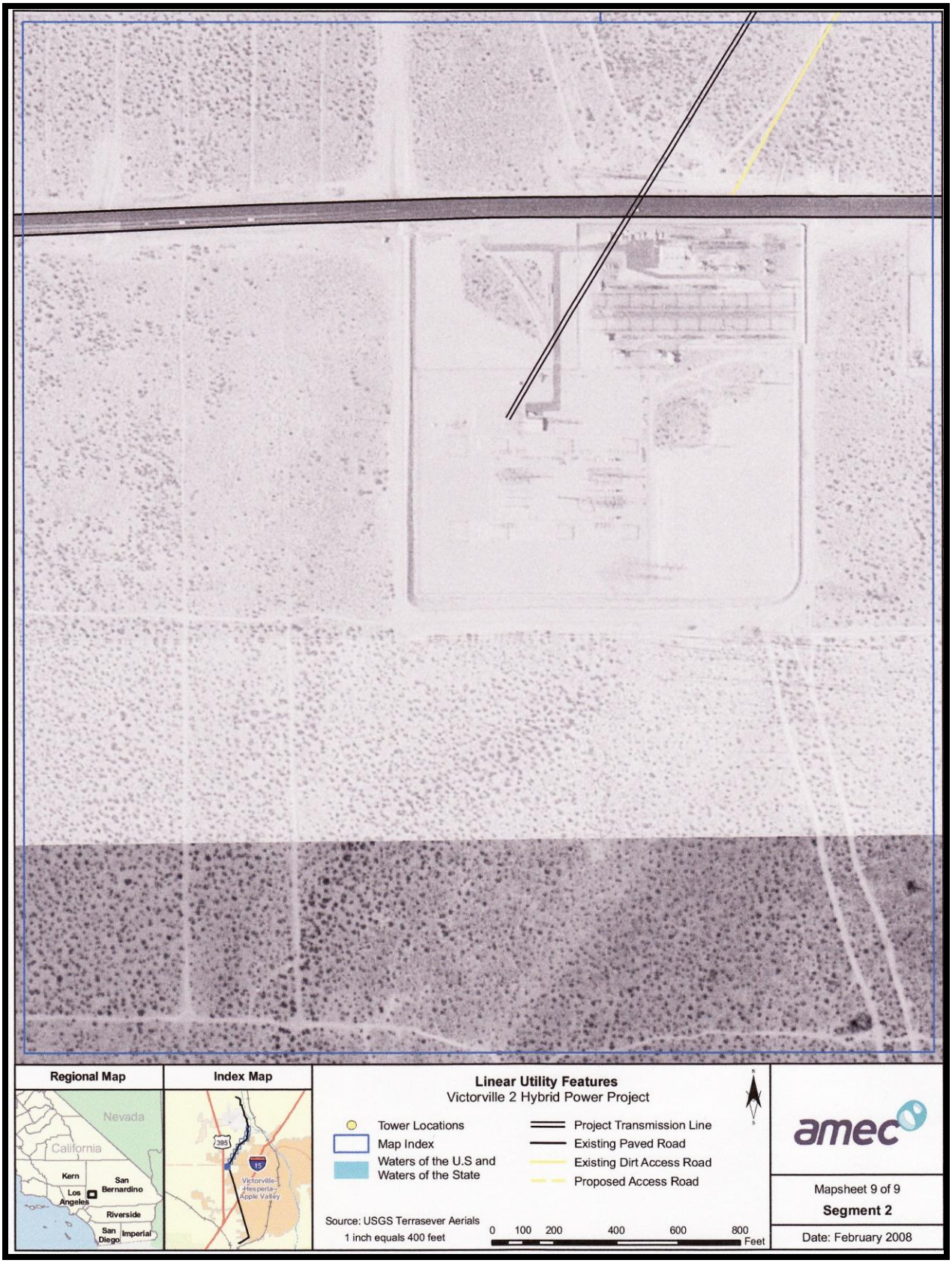
Feet
Mapsheet 8 of 9
Segment 2
Date: February 2008


Regional Map
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Kern
San Bernardino
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Victorville-Hesperia-Apple Valley
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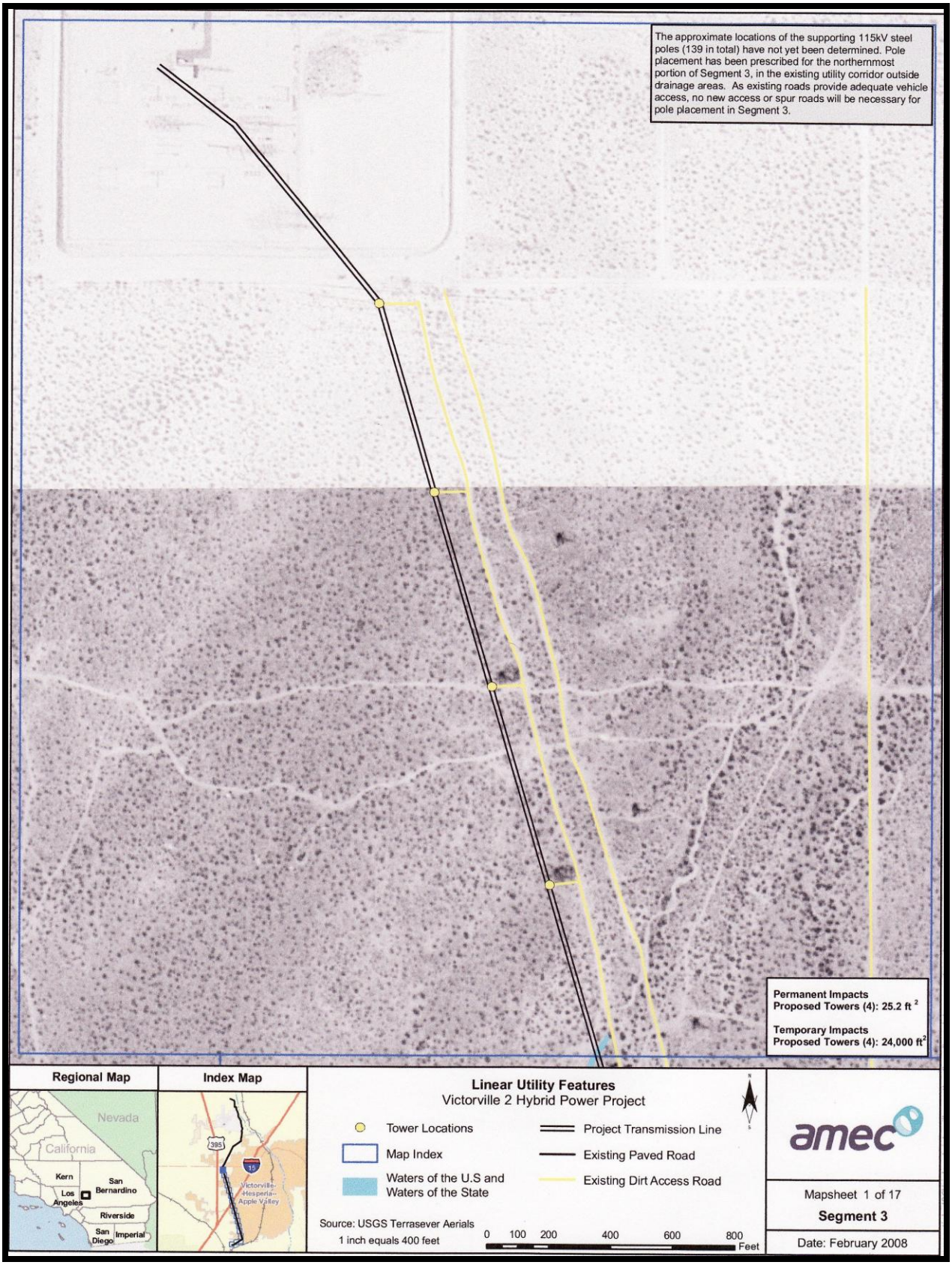
Existing Dirt Access Road
Proposed Access Road
Source: USGS Terrasever Aerials
1 inch equals 400 feet
0 100 200 400 600 800
Feet
amec
Mapsheet 9 of 9
Segment 2
Date: February 2008

Exhibit A3a.

Victorville 2 Hybrid Power Project
Linear Utility Segment 3


The approximate locations of the supporting 115kV steel poles (139 in total) have not yet been determined. Pole placement has been prescribed for the northernmost portion of Segment 3, in the existing utility corridor outside drainage areas. As existing roads provide adequate vehicle access, no new access or spur roads will be necessary for pole placement in Segment 3.
Permanent Impacts
Proposed Towers (4): 25.2 ft 2
Temporary Impacts
Proposed Towers (4): 24,000 ft2
Regional Map
Nevada
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San Bernardino
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Victorville-Hesperia-Apple Valley
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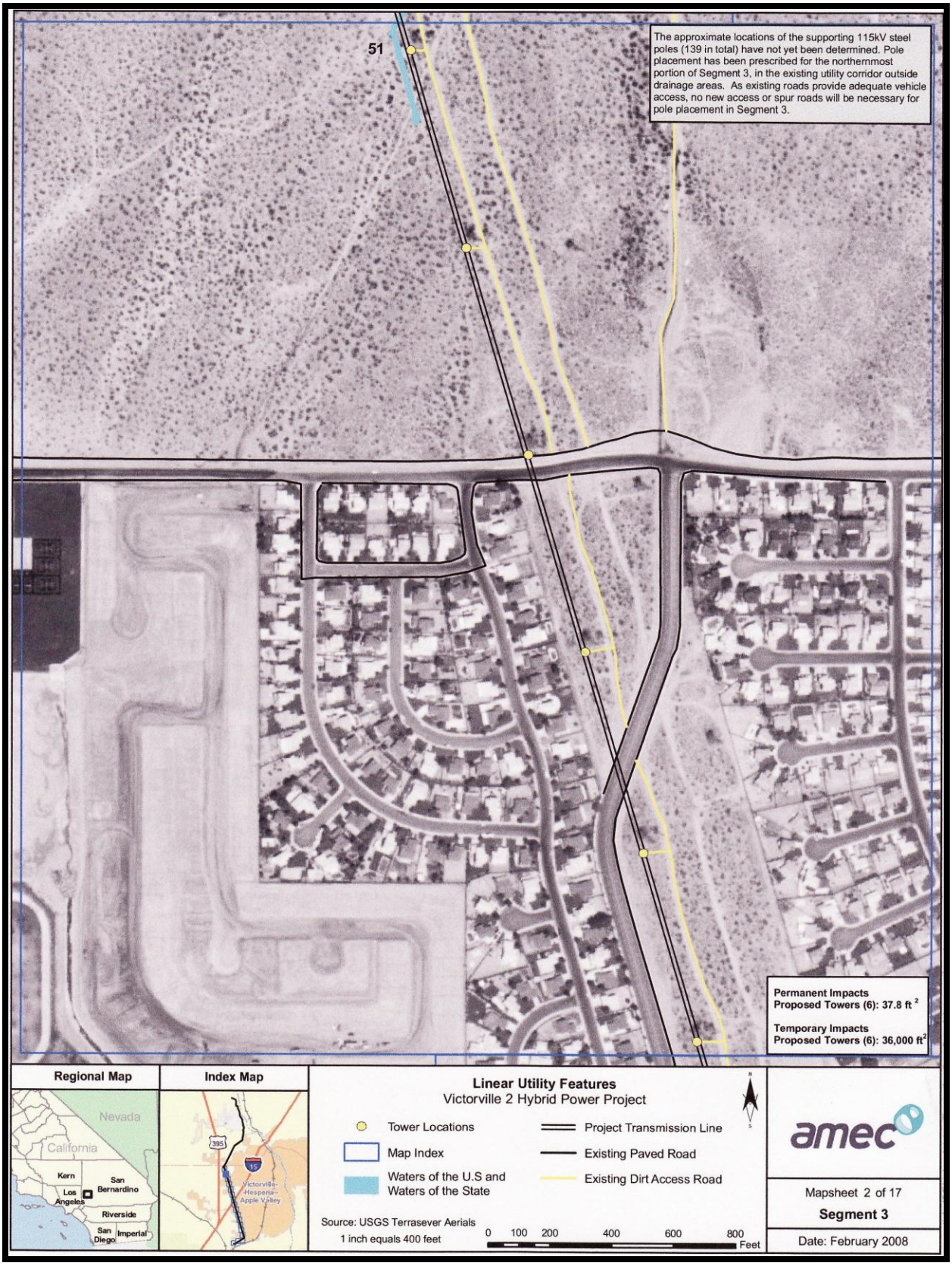
Waters of the U.S and Waters of the State
Project Transmission Line
Existing Paved Road
Existing Dirt Access Road
Source: USGS Terrasever Aerials
1 inch equals 400 feet
0 100 200 400 600 800 Feet
Mapsheet 1 of 17
Segment 3
Date: February 2008


51
The approximate locations of the supporting 115kV steel poles (139 in total) have not yet been determined. Pole placement has been prescribed for the northernmost portion of Segment 3, in the existing utility corridor outside drainage areas. As existing roads provide adequate vehicle access, no new access or spur roads will be necessary for pole placement in Segment 3.
Permanent Impacts
Proposed Towers (6): 37.8 ft 2
Temporary Impacts
Proposed Towers (6): 36,000 ft2
Regional Map
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Waters of the U.S and Waters of the State
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Existing Dirt Access Road
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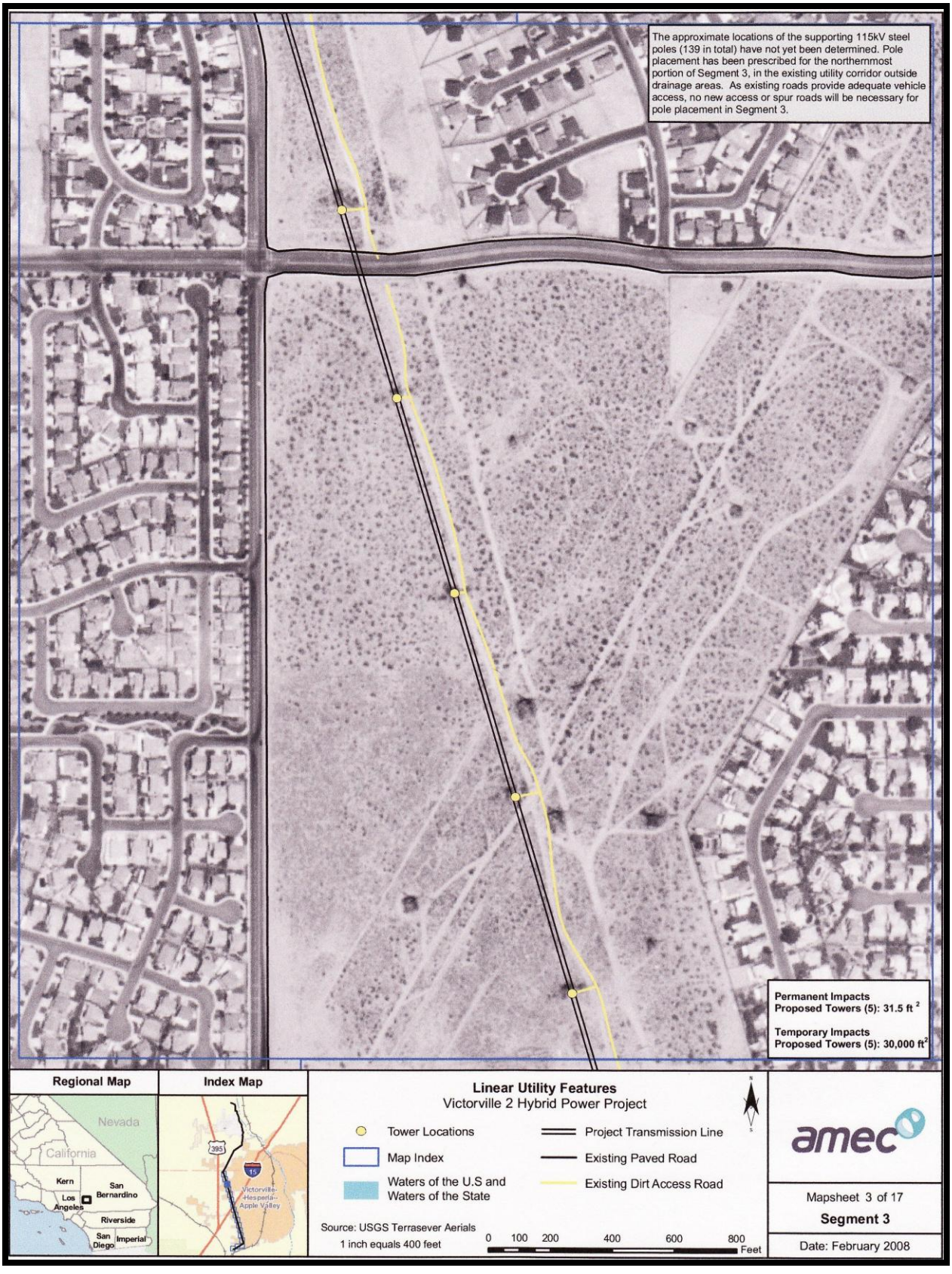
S
Source: USGS Terrasever Aerials
1 inch equals 400 feet
0 100 200 400 600 800
Feet
amec
Mapsheet 2 of 17
Segment 3
Date: February 2008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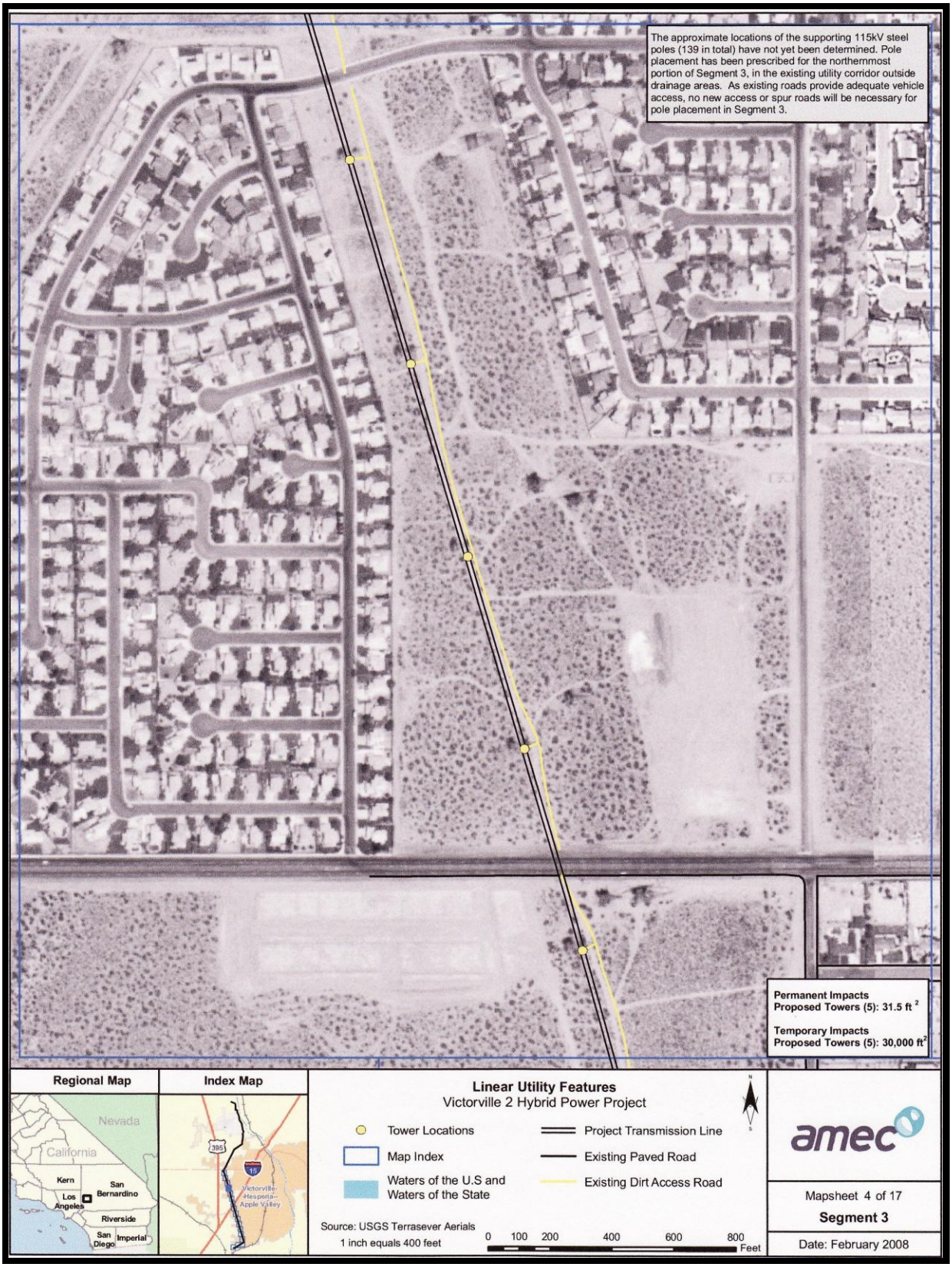
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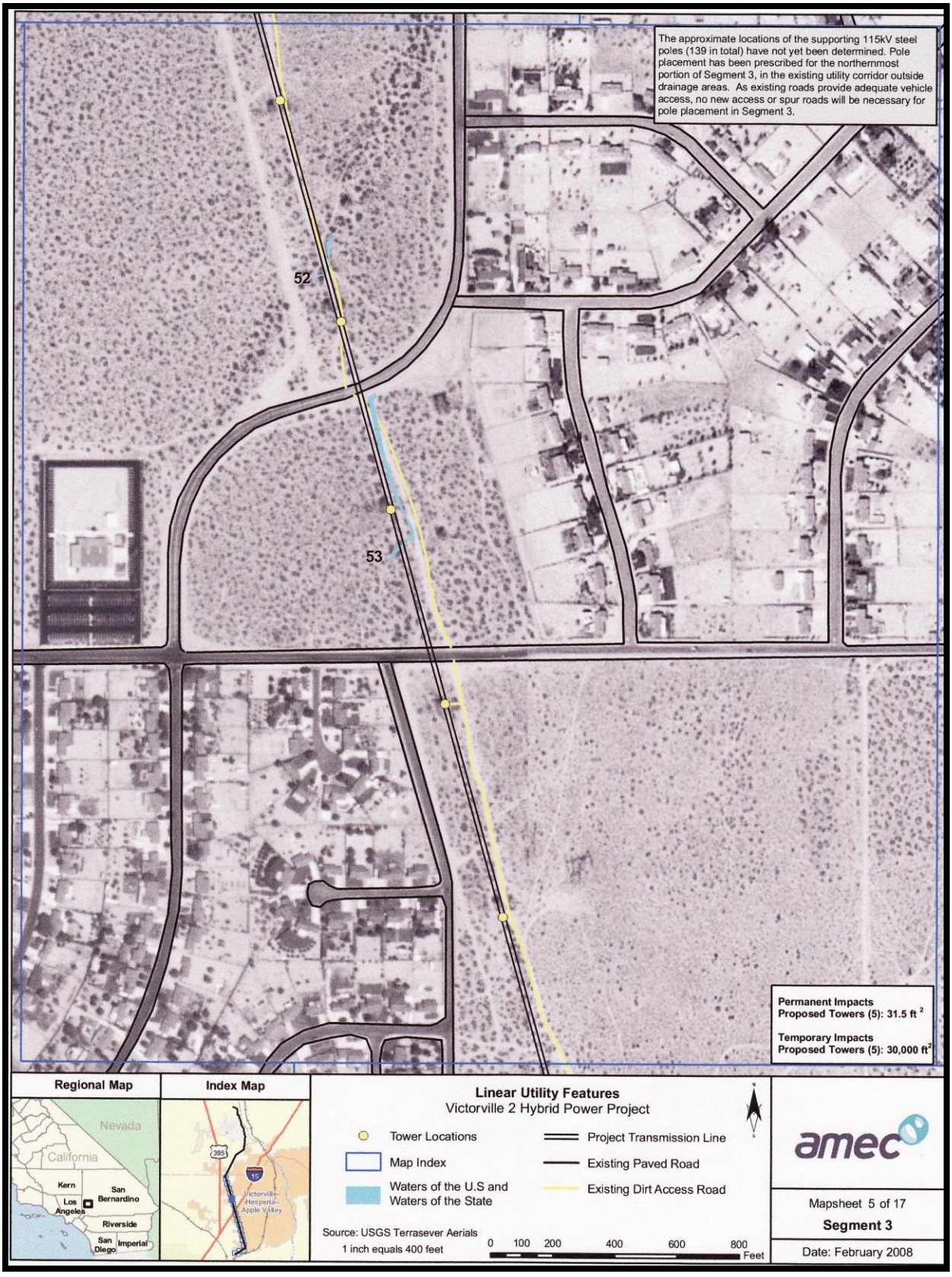
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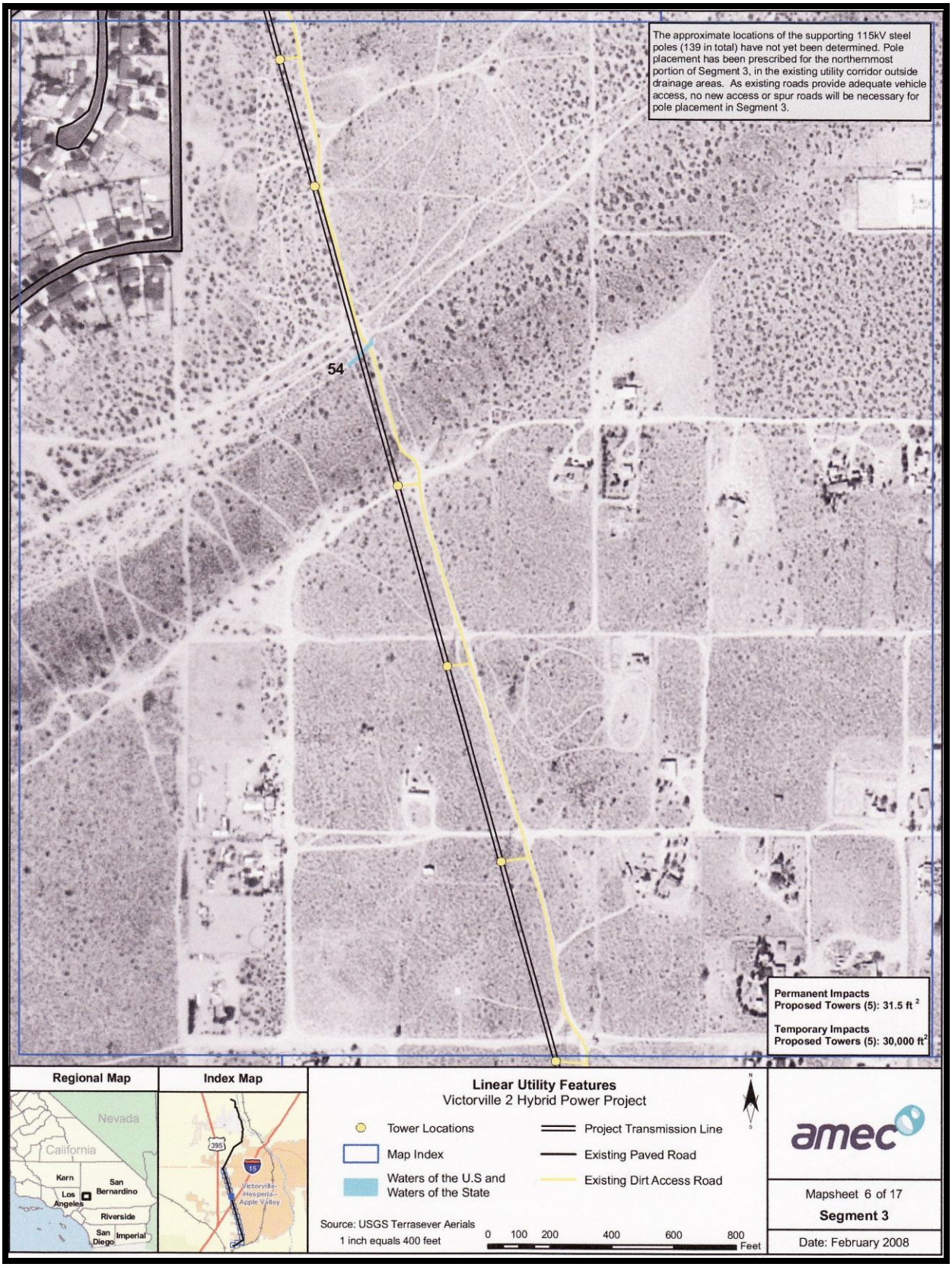
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Exhibit A3b.

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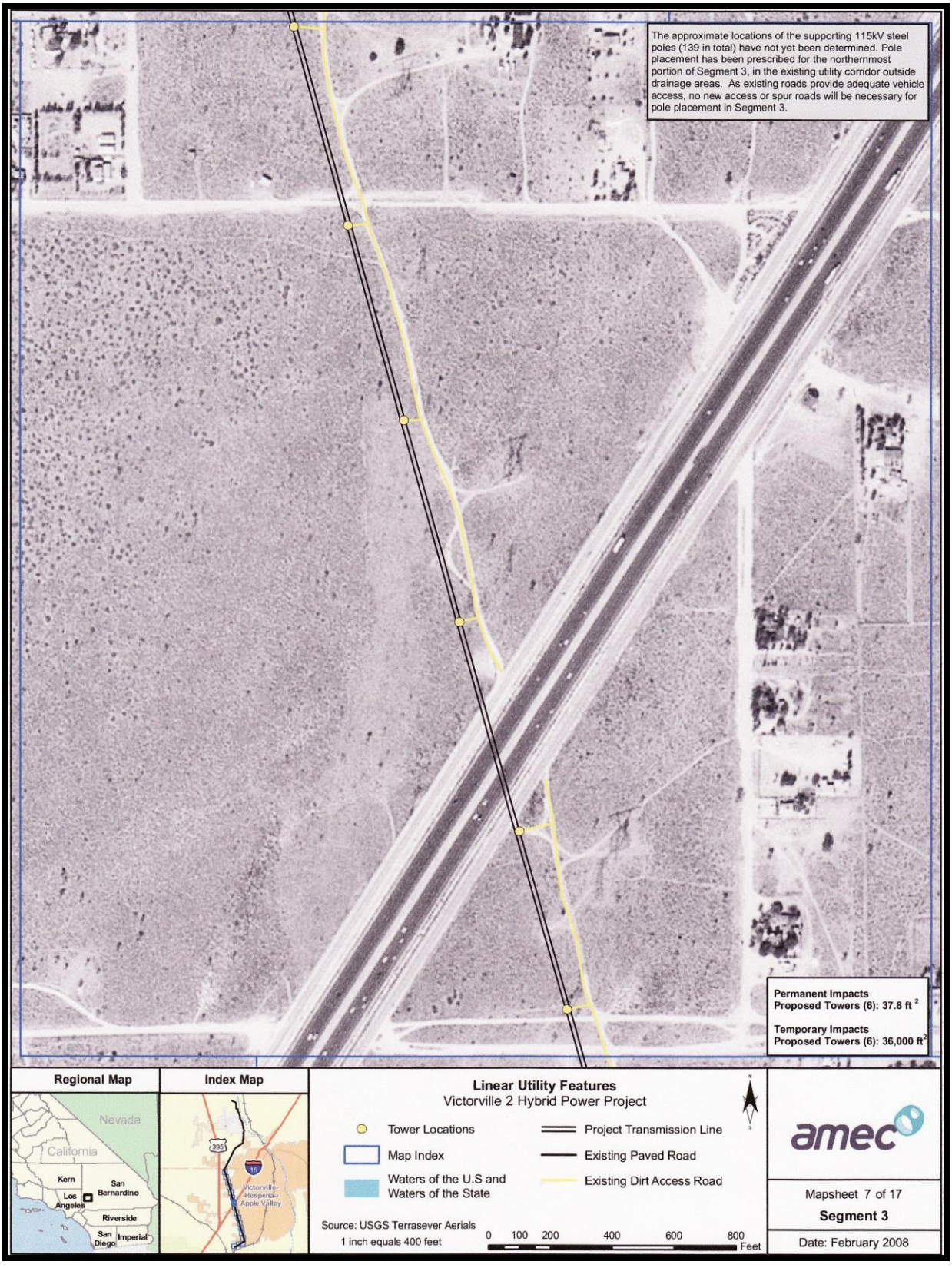
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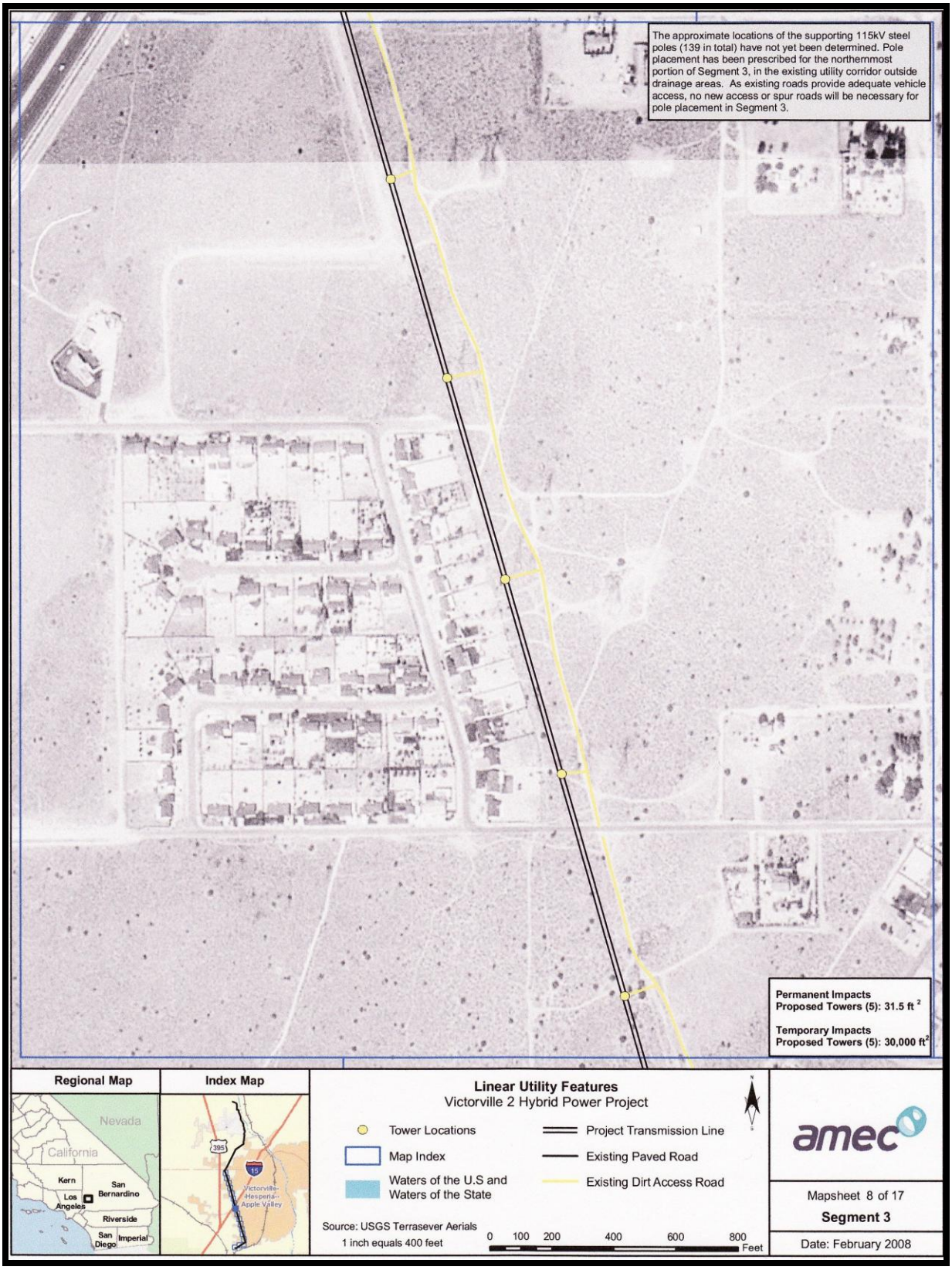
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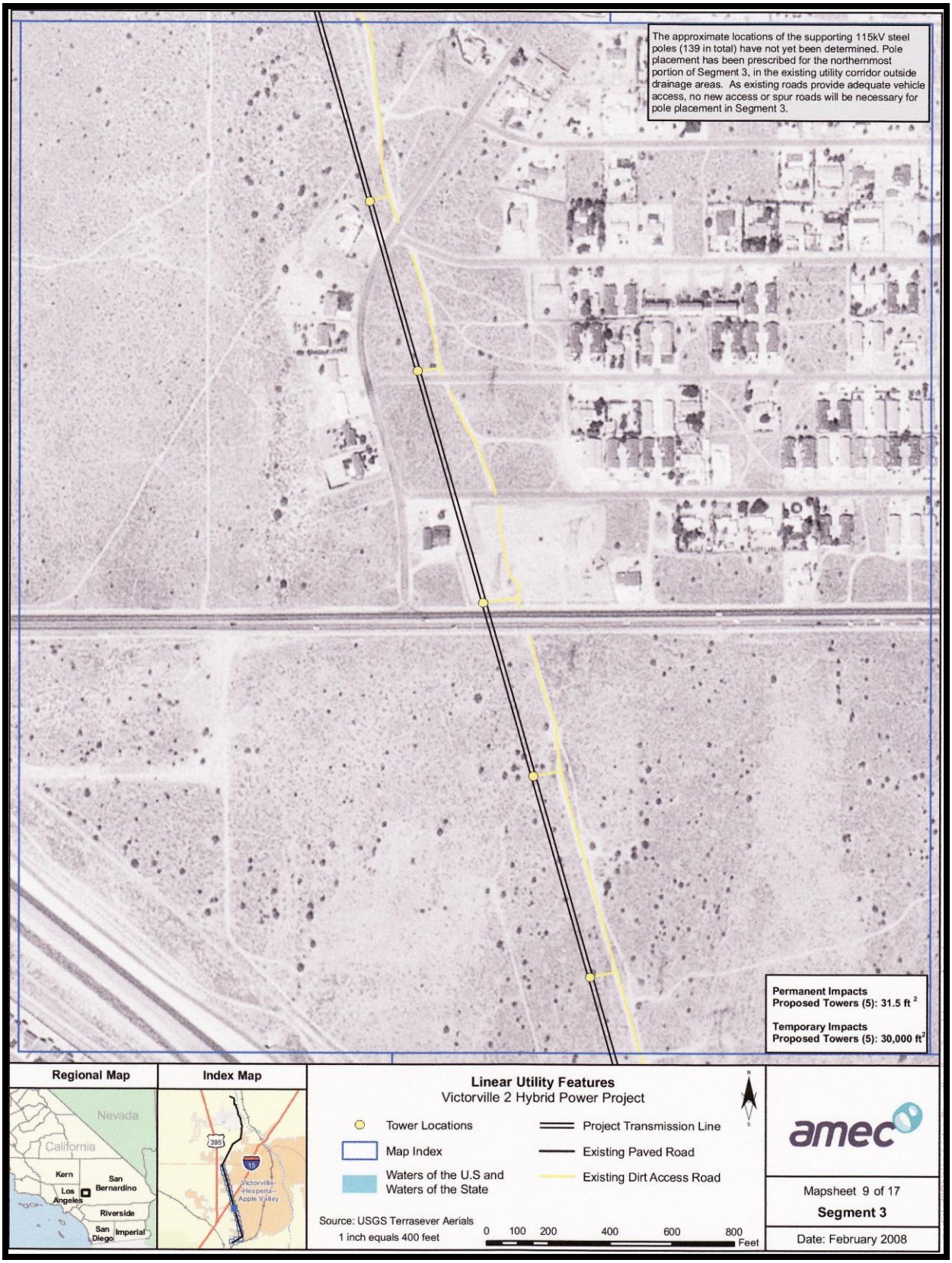
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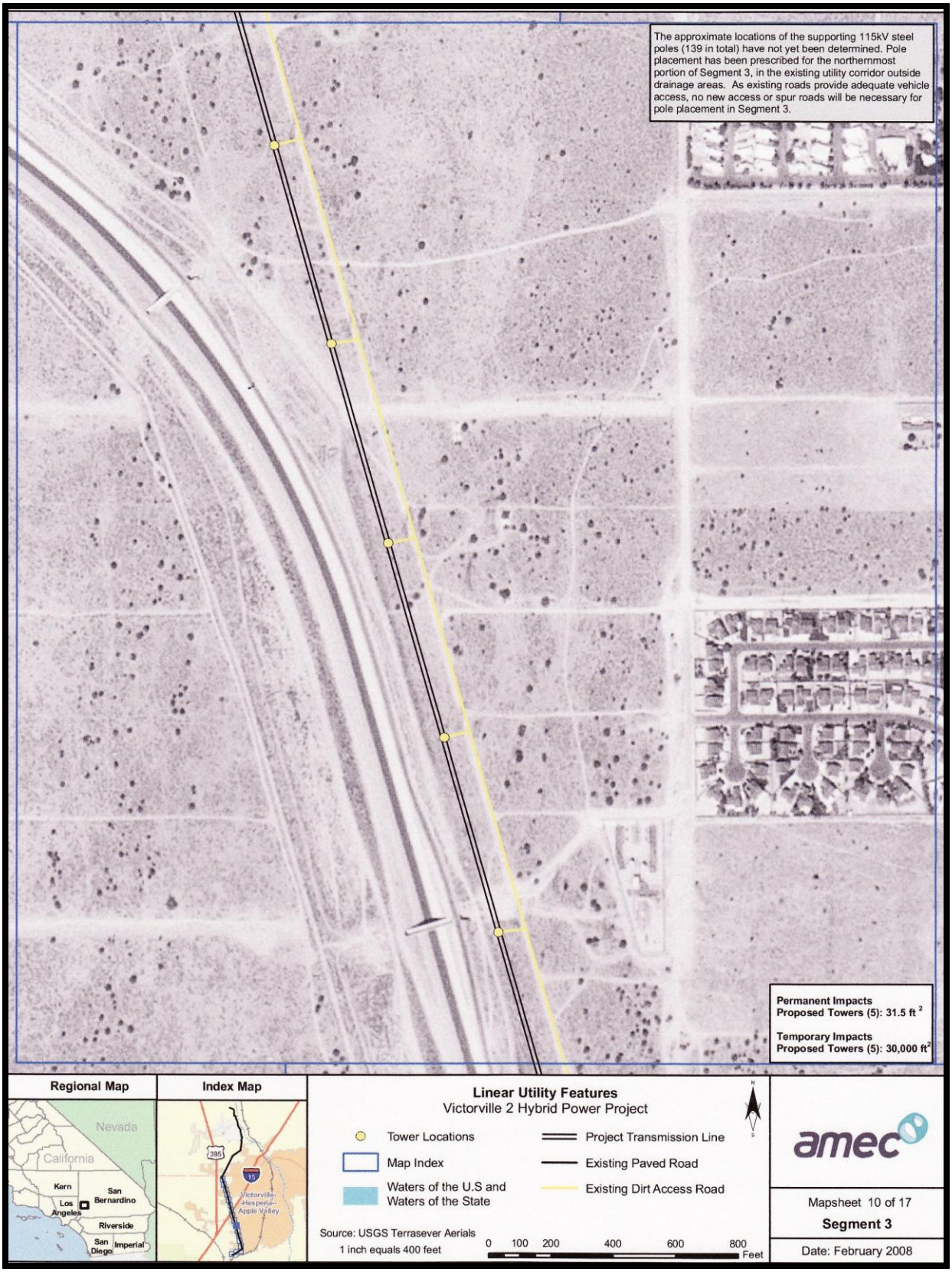
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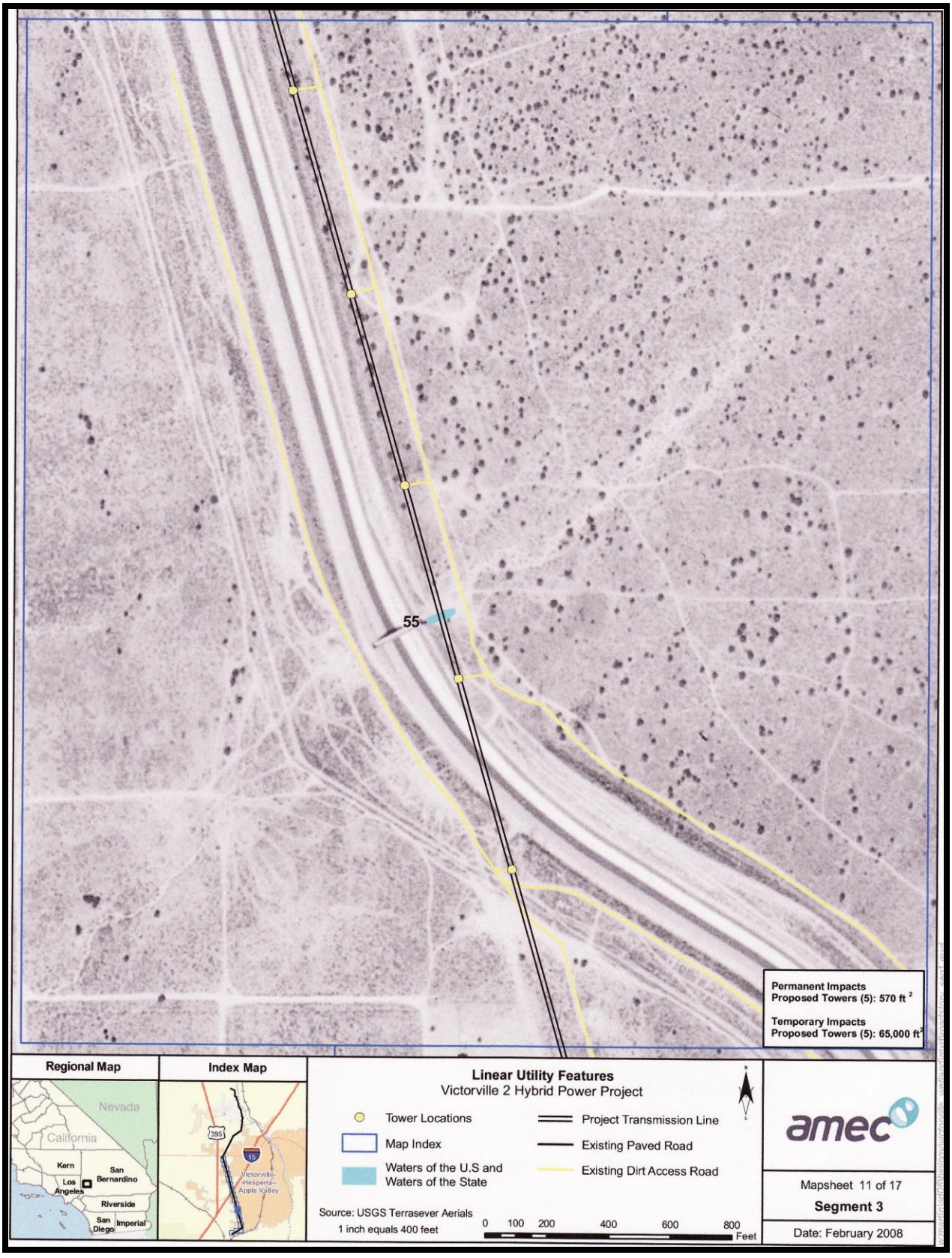
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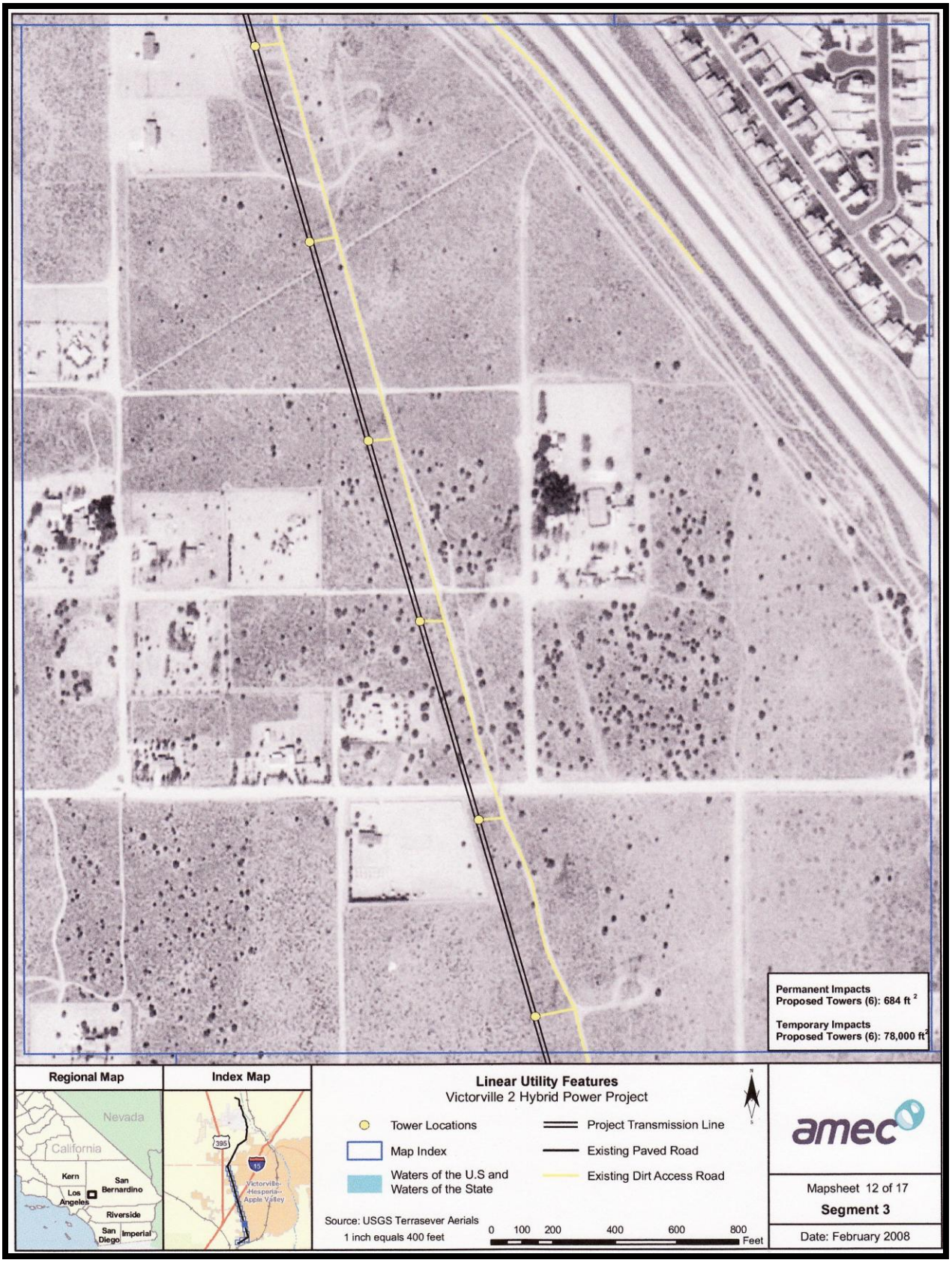
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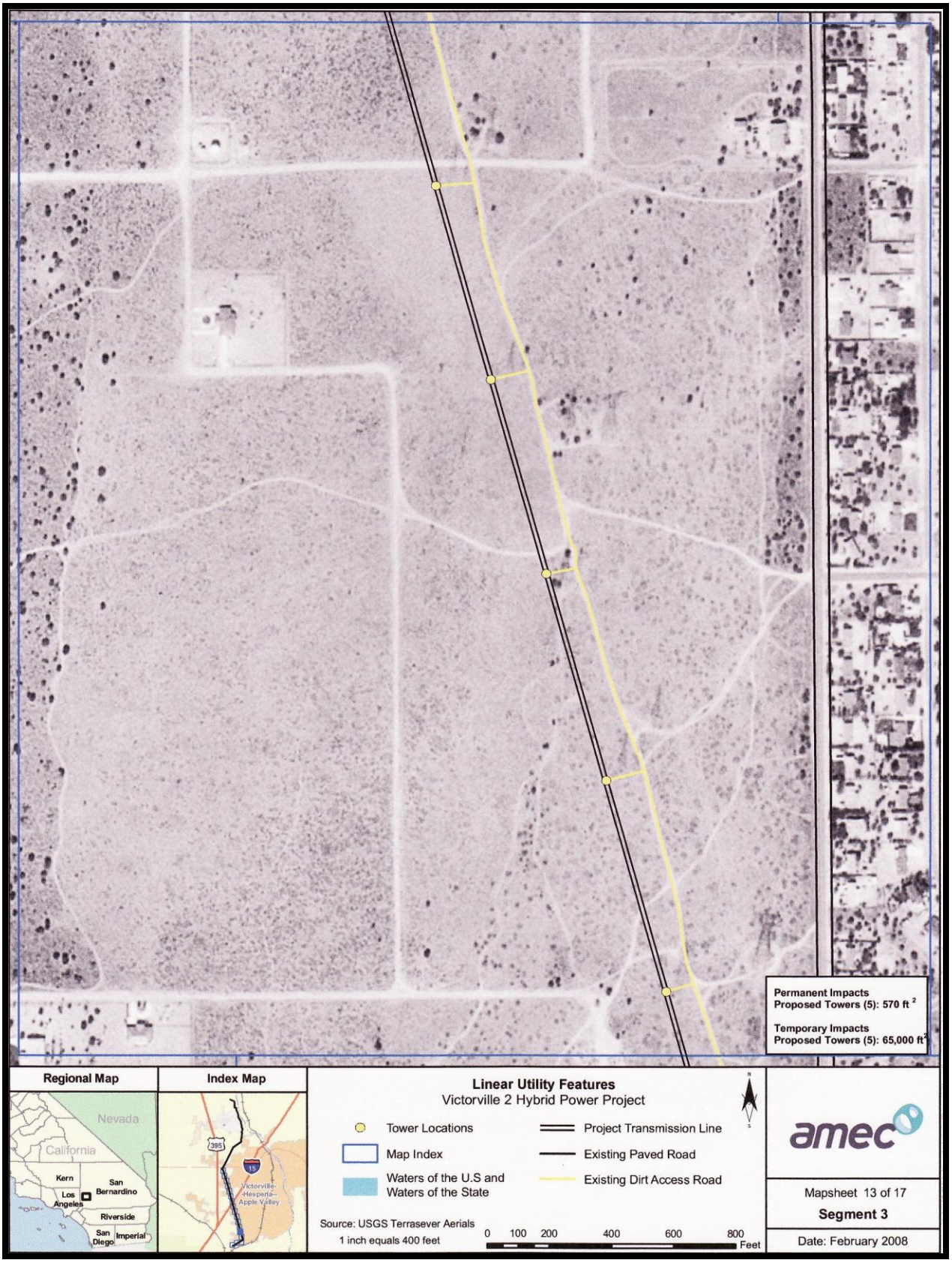
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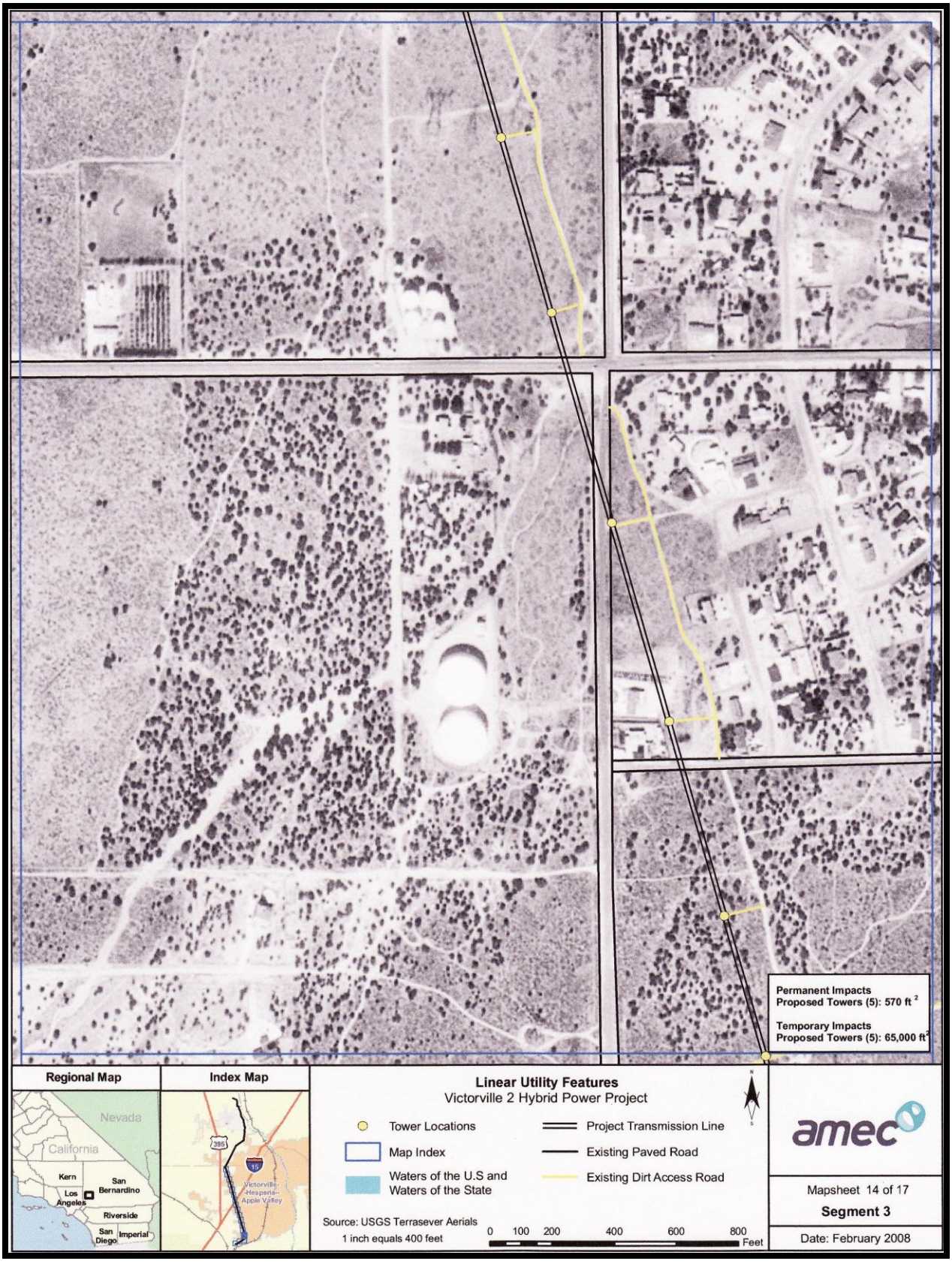
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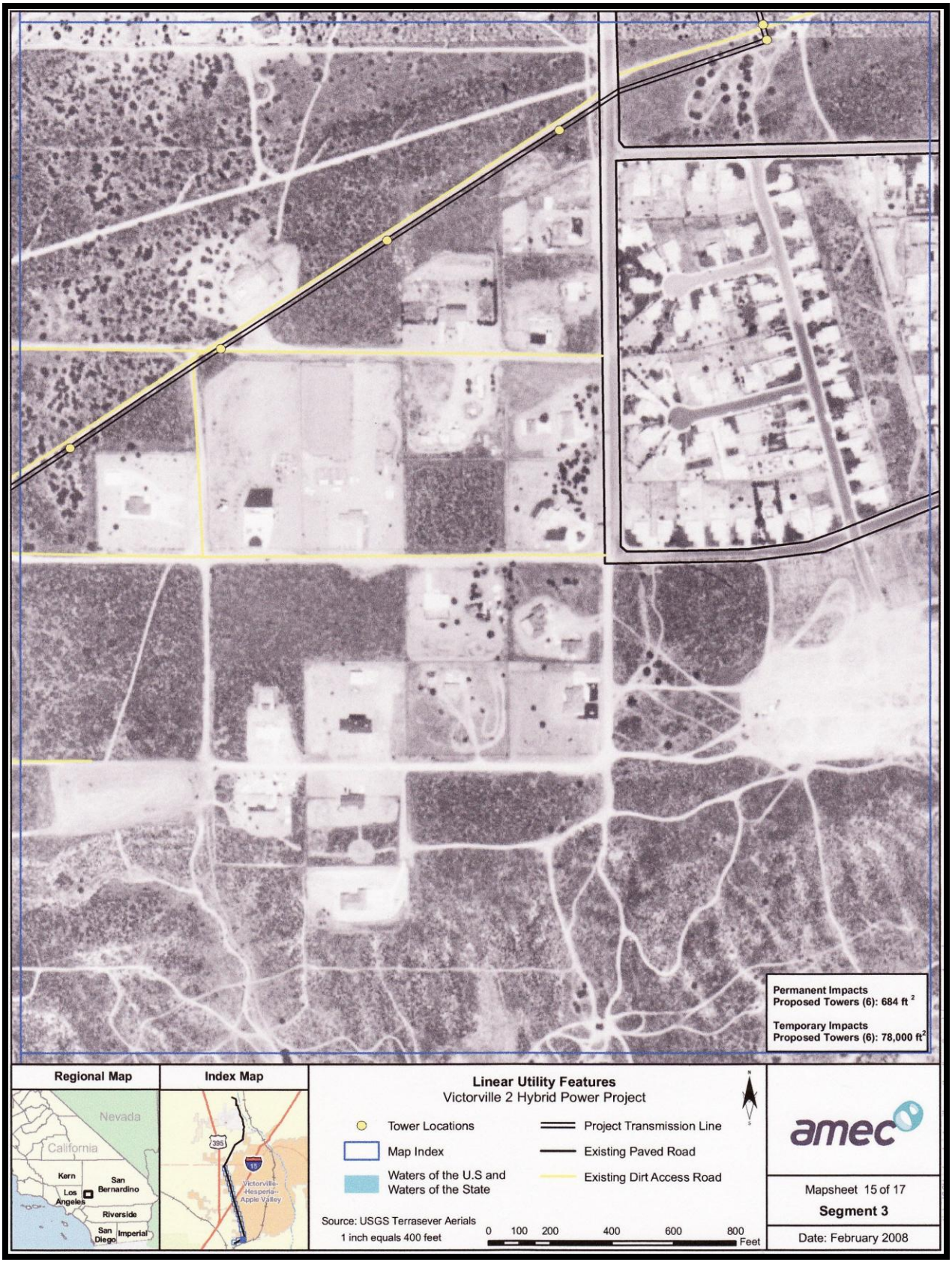
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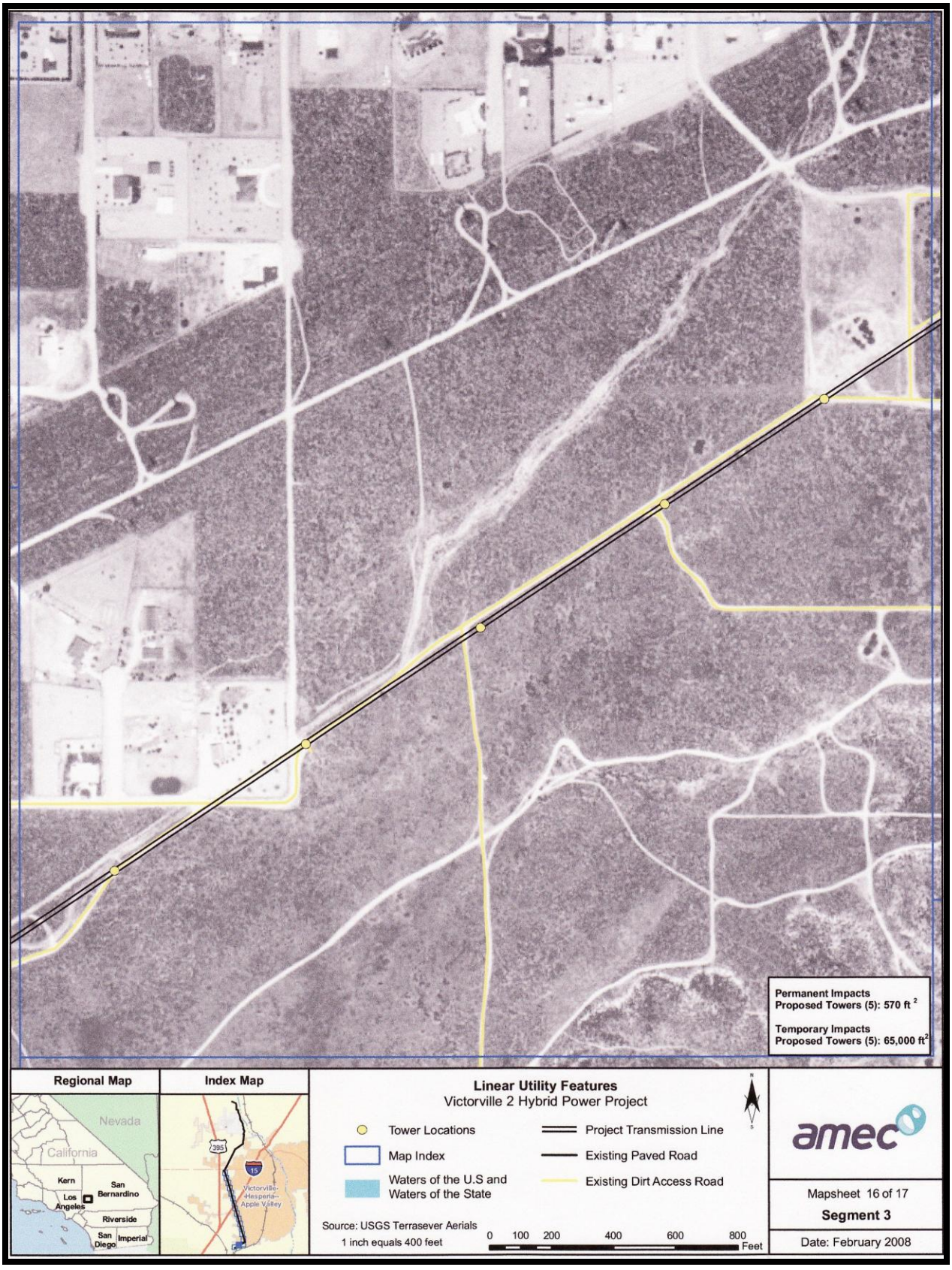
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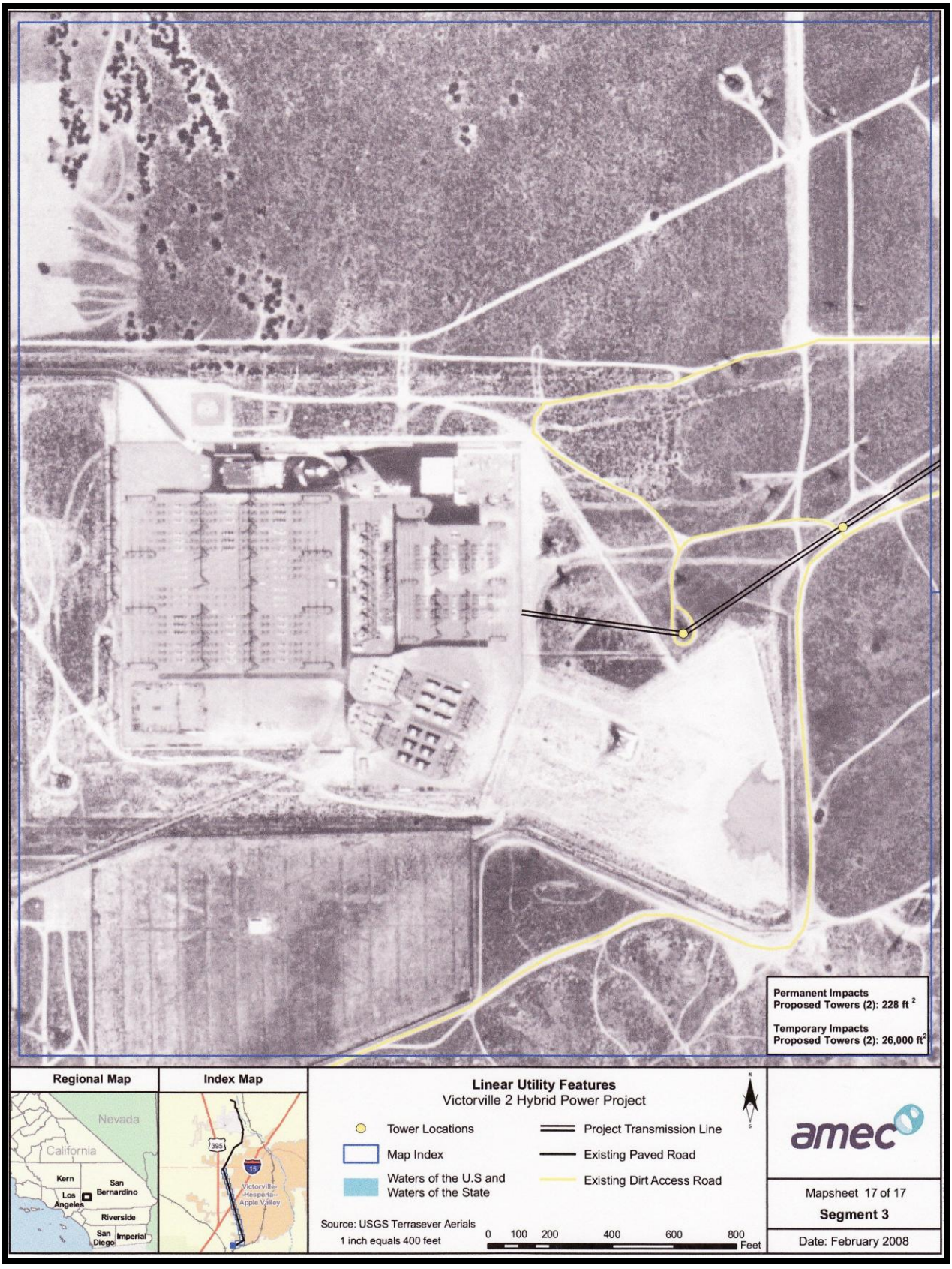
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EXHIBIT B

Analysis of Potential Vegetation Impacts Due to Salt Deposition from Victorville 2 Hybrid Power Project Cooling Tower Drift

In order to assess the impact of salts that will be present in the mist, or air drift, that is released from the Project cooling tower, the air quality impact assessment performed for the VV2 Project was reviewed. This VV2 Project impact assessment included dispersion modeling of the emission sources with the AERMOD Program, which involved modeling the total dissolved solids (TDS) anticipated to be emitted from the cooling tower. Reclaimed water will be used in the Project's cooling tower, and a portion of the dissolved solids in this water will include salts. Based on a review of the 2004 and 2005 data from the Victor Valley Wastewater Reclamation Authority (VVWRA), salts (sodium, chloride, sulfate and nitrate) emitted from the cooling tower may be on the order of 70 percent of the TDS.

The Project's maximum 24-hour total particulate impact was estimated to be 6 micrograms per cubic meter ($\mu g/m^3$). Approximately 5 $\mu g/m^3$ of the total particulates amount is expected due to the use of combustion equipment, which will not contain salt emissions; and approximately 1 $\mu g/m^3$ due to use of the cooling tower. As stated above, approximately 70 percent of the TDS emissions from the Project's cooling tower could be salts, and thus a maximum 0.7 $\mu g/m^3$ concentration of salts would be expected as a cooling tower emission.

Dispersion modeling showed that the maximum emission impact would occur at the Project fence line, near the facility's combustion sources, and that this impact would drop off very quickly with increasing distance from the combustion sources. Impact is anticipated to be negligible (0.09 $\mu g/m^3$) at the Mojave River riparian communities located closest to the Project.

At southwestern flycatcher critical habitat situated 3.5 miles to the southeast of the power plant, the emission impact would be undetectable (<0.01 $\mu g/m^3$). Similarly, the emission impact at locations situated four miles to the northeast, proximal to designated desert tortoise critical habitat, would be undetectable (<0.01 $\mu g/m^3$).

The maximum salt deposition amounts resulting from the cooling tower are expected to occur at the VV2 Project fence line. On an annual average basis, this maximum salt deposition amount has been estimated to be 0.07 $\mu g/m^3$.This salt contribution is anticipated to drop to a tenth as much (<0.01 $\mu g/m^3$) along the Mojave River.

There is no specific air quality standard for salt emissions, but the EPA has set "secondary" ambient air quality standards that are meant to protect public welfare, including impacts to crops and plants. The 24-hour Particulate Matter of 10 microns or less (PM10) secondary standard that has been established is 150 $\mu g/m^3$. The Project is anticipated to contribute considerably less than this amount, with the maximum amount deposited at the Project's fence line.

Occasional salt buildup on vegetation is a fairly natural occurrence in arid environments such as the Mojave Desert. Due to the extremely low salt concentrations emitted from the VV2 Project and vegetative adaptations of plants occurring in the Project vicinity, no adverse impact to upland or riparian plant communities as a result of the Project would be anticipated.

EXHIBIT C

Analysis of Potential Vegetation Impacts Due to Nitrogen Deposition from Victorville 2 Hybrid Power Project Combustion Source Emissions

Nitrogen deposition on proximal soils is expected to occur over time as a result of VV2 Project operations. While nitrogen deposition may benefit non-native annual grasses occurring in the immediate vicinity of the Project to a small degree, this deposition is not expected to substantially benefit non-native growth to the detriment of native plant species occurring in the area.

Project emissions will contain nitrogen, mostly in the form of nitric oxide (NO). The NO will react in the air to form other compounds such as nitrogen dioxide (NO_2), and nitrate (NO_3) compounds. Similar to the cooling tower drift discussion in Exhibit A, the Project was assessed for its potential nitrogen deposition impacts in the area.

The combustion turbine generators and other combustion equipment associated with the Project have been estimated to emit up to 108 tons per year of NOx emissions, due to the combustion of natural gas and diesel fuels. Of the total NOx emissions, 32.9 tons of nitrogen per year would be the maximum amount of nitrogen deposited on soils situated near the Project site.

Project nitrogen oxides (NO_X) emissions estimated for the VV2 Project have been modeled with the CALPUFF Program to estimate the potential nitrogen deposition in the vicinity of the Project. The CALPUFF model, which was used for the Project to assess potential Class I area impacts, incorporates the required atmospheric chemistry and chemical transformations necessary to compute nitrogen deposition. The total modeled nitrogen deposition rates are based on the sum of wet and dry fluxes of NO_3 (as NH_4NO_3) and HNO_3 in addition to dry deposition of NO_X (assumed to be NO_2).

The CALPUFF model provides results in units of kilograms per hectare per year (kg/ha/yr). Nitrogen deposition rates were modeled at receptor grids which included the Project fence line and three nearby habitat areas of concern: riparian plant communities along the Mojave River, southwestern willow flycatcher critical habitat, and desert tortoise critical habitat (Fremont-Kramer Desert Wildlife Management Area).

The maximum annual deposition rate of 0.083 kg/ha/yr was modeled to occur along the fence line to the northeast of the facility, consistent with the predominant winds which blow most frequently from the south and south-southwest. The maximum concentrations at the three habitat areas of concern were 0.033, 0.002, and 0.003 kg/ha/yr, respectively.

In general, nitrogen deposition acts as a plant nutrient. This can be beneficial to some plant species, but can also be detrimental where it benefits non-native plants competing with native vegetation important to herbivores like the tortoise.

The estimated nitrogen amount corresponding to the annual modeled nitrogen deposition rates for several areas in the Project region are as follows:

- VV2 Power Plant fence line = 0.017 lbs / 10,000 ft^2
- Riparian plant communities along the Mojave River = 0.007 lbs / 10,000 ft^2
- Southwestern willow flycatcher critical habitat = 0.0004 lbs / 10,000 ft^2
- Desert tortoise critical habitat = 0.0006 lbs / 10,000 ft^2

The maximum of 0.017 lbs per 10,000 ft^2 estimated for the VV2 Project plant fence line is equivalent to approximately 1.2 ounces of nitrogen per acre, with smaller amounts of nitrogen expected in areas located at a distance from the Project fence line. Such nitrogen deposition rates are considered negligible as a plant growth influence. Based on these results, nitrogen deposition associated with the VV2 Project's air emissions is expected to have a negligible impact on plants growing in the Project vicinity.

EXHIBIT D

Victorville 2 Hybrid Power Project
Desert Tortoise (*Gopherus agassizii*) Translocation Plan

VICTORVILLE 2 HYBRID POWER PROJECT

DESERT TORTOISE (Gopherus agassizii) TRANSLOCATION PLAN

AMEC Earth & Environmental
3120 Chicago Avenue, Suite 110
Riverside California 92507

February 2008

VICTORVILLE 2 HYBRID POWER PROJECT
DESERT TORTOISE (Gopherus agassizii) TRANSLOCATION PLAN

Prepared for:

City of Victorville
14343 Civic Drive
Victorville, California 92392
(760) 955-5029

On behalf of:

Inland Energy
14390 Civic Drive
Victorville California 92392
(760) 843-5450

And

ENSR Corporation
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Prepared by:

AMEC Earth & Environmental, Inc.
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(951) 369-8060

Principal Investigator:
Thomas B. Egan
Senior Ecologist

AMEC Job #6554000228

February 2008

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1.0 INTRODUCTION

The Victorville 2 Hybrid Power Project (VV2 or Project) has been proposed by the City of Victorville for private land location in the western portion of California's Mojave Desert (Figure 1). This hybrid electrical power-generation facility will utilize several parabolic solar collector arrays and will be situated north of the Southern California Logistics Airport and west of the Mojave River (Figure 2). Linear utility features (Appendix 1) will connect to an existing gas pipeline, electrical transmission line, water distribution system and water treatment facility (AMEC 2007, 2008).

Project construction is scheduled to begin in summer 2008. These activities have the potential to adversely affect the desert tortoise (*Gopherus agassizii*), a state and federally listed threatened species. Site fencing following facility installation will preclude post-construction use of some habitat by this species. "Incidental take" permitting under the federal Endangered Species Act (ESA) and the California Endangered Species Act (CESA) has been initiated. Translocation of desert tortoises from permanently impacted Project acreage to suitable offsite lands, and temporary removal of all at-risk animals during Project construction, have been identified as key mitigation measures.

Two adult desert tortoises have been observed within the Project's proposed permanent disturbance footprint, with an additional four adult animals observed in the adjacent zone of influence. Hatchling, juvenile or other adult tortoises, and perhaps even viable tortoise eggs (though unlikely), may also be discovered during clearance surveys of the Project site. The translocation of two or more desert tortoises therefore is anticipated from the Project's proposed permanent disturbance area, with the potential removal of four or more animals out of harm's way in temporary disturbance areas.

Specific direction for desert tortoise translocation and removal of at-risk animals is discussed in this document. This direction and a selected translocation destination area will be subject to regulatory agency approvals prior to implementation.

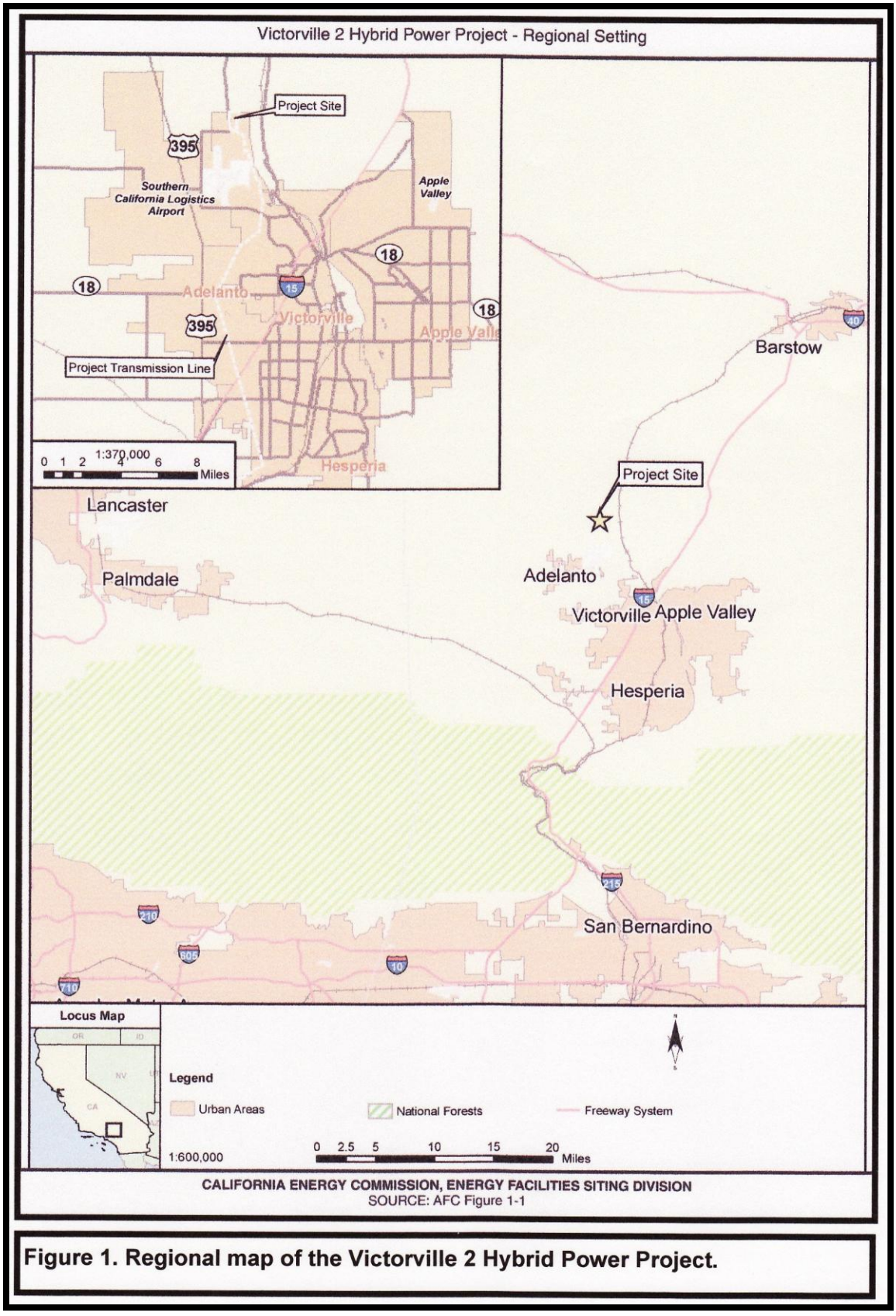

Figure 1. Regional map of the Victorville 2 Hybrid Power Project.

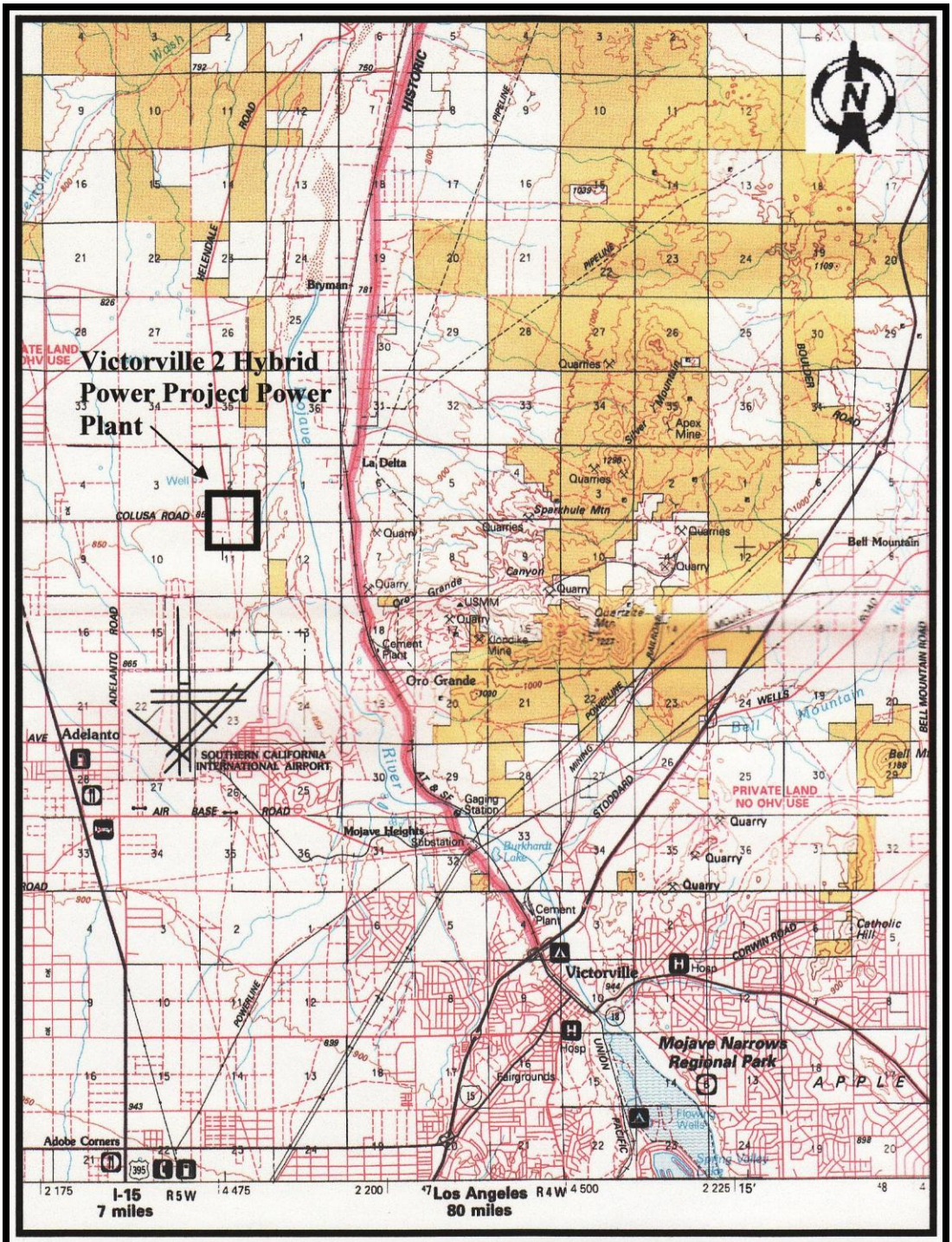

Figure 2. Land status of the Victorville 2 Hybrid Power Project plant proposed for private land location north of the Southern California Logistics Airport. Private lands are depicted in white and public lands are depicted in yellow; modified from the Bureau of Land Management (BLM) California Desert District's Victorville Desert Access Guide (1998).

2.0 BACKGROUND

Desert tortoise translocation in wildland habitats is a relatively new and incompletely-studied field. This technique is becoming increasingly necessary to mitigate incidental take of this species where urban growth is occurring. Research on desert tortoise translocation and the removal of at-risk animals from urban development areas have been recommended by the U.S. Fish and Wildlife Service (USFWS) in the "*Desert Tortoise (Mojave Population) Recovery Plan*" (1994). Several broad guidelines for translocation also have been recommended (Appendix 2).

Translocation of desert tortoises can have beneficial effects on population growth of the species (FWS 2004). One measure of success for translocated animals is the degree which desert tortoises establish home ranges and enter into existing desert tortoise social structure (Berry 1986). However, a more commonly used measure of translocation success is tortoise survival.

Tortoises are known to have survived for at least 24 months when excluded from a portion of their home range (e.g., Stewart and Baxter 1987, TRW 1998). Tortoises are also well known for their survival when placed into suitable, captive environments (St. Amant and Hoover 1978) and when rehabilitated captive tortoises have been released (Cook 1983). Stewart (1993) observed that survival rates and average movements did not differ between translocated tortoises and resident animals during an 18 month period. Mullen and Ross (1997) similarly observed no difference between resident and relocated tortoise survival, which involved an analysis of late spring animal releases.

Translocation mortality within one year of release has been found in one instance to be substantially correlated with a period of drought (Saethre et al. 2003]. Other stressors and various anthropogenic influences (Lovich and Bainbridge 1999) undoubtedly affect the survival of individual translocated animals.

Although relatively few studies have been conducted, there appears to be no adverse effects on resident tortoise populations into which translocated tortoises are moved (Nussear 2004).

Two large translocation efforts are currently being implemented in the Mojave Desert as part of the Fort Irwin National Training Center Expansion (Esque et al. 2005) and the Hyundai Test Track project in California City (Karl 2003). Data collected from the considerably smaller VV2 Project Translocation Program in an urban interface area could serve to augment knowledge generated by larger translocation efforts.

The studies completed to date suggest that desert tortoise translocation, if conducted appropriately and during periods of forage availability, can result in high survivorship (Nussear et al. 2000, Karl 2007). The season of translocated animal release appears to have a substantial impact on tortoise mortality. Cook's (1983) study illustrated this point, where six of the eight known translocated animal deaths recorded in one such effort occurred when animals were released during the summer. Late winter (Field et al. 2003), fall or early spring months (pers. comm. Dr. Alice Karl, 2007) appear to be conducive to high translocation survival rates.

Additional considerations can factor into long-term survival potentials following even successful translocations. Desert tortoises "*have complex social behaviors and intimate familiarity with their home ranges, which can be quite large*" (USFWS 1994). Those translocation efforts incorporating a portion of a tortoise's original home range may facilitate an animal's ability to locate suitable forage in dry years and/or successfully avoid predation over the long term.

However, translocation of a tortoise into non-impacted portions of a home range is not always an option in rapidly developing areas. For all translocation efforts, whether tortoises are moved only short distances or away from their home range, care must be taken to ensure the translocated animals are not placed into sub-optimal habitat or at-risk areas.

Translocation should be considered as part of a "tool box" for conserving at-risk desert tortoises, according to Management Goal F of the California Statewide Desert Tortoise Management Policy (BLM and CDFG 1992). A carefully implemented translocation program can contribute to conservation of the species and also has the potential to provide useful data for future translocation efforts (Karl 2003, Field et al. 2007).

3.0 GOALS

Three overall goals have been identified for the VV2 Project Translocation Plan. These overall goals include:

(1) Successful translocation of at-risk desert tortoises from the VV2 power plant site to a selected translocation area and careful relocation of at-risk tortoises in the Project's connected linear utility features during construction to suitable habitat located adjacent to the active work area;

(2) Minimization of the impacts of translocation on recipient desert tortoise populations; and

(3) Collection of monitoring data to contribute to the collective knowledge of translocation as a viable conservation technique.

4.0 TRANSLOCATION PLAN

All at-risk desert tortoises must be translocated from the permanent surface disturbance area of the VV2 Project's power plant site to a suitable offsite habitat, following issuance of incidental take approvals from state and federal regulatory agencies.

Desert tortoise exclusion fencing will be installed around the perimeter of the power plant site (permanent fencing) and two staging areas (temporary fencing) to prevent subsequent tortoise movement into the active work area. At-risk tortoises found in temporary surface disturbance areas associated with the staging areas and linear utility features, and which cannot be avoided, will be moved to an adjacent unrestricted location within the Project right-of-way, or to adjacent lands where approved by the respective landowner.

All activities described in this Translocation Plan will be consistent with the ESA Biological Opinion and the CESA Section 2081 incidental take permit issued for this Project, as affirmed in Section 4.1 below.

Pre-construction clearance surveys will be necessary in all Project site construction areas and material storage/equipment staging areas, as detailed in Section 4.2. Desert tortoise handling and transport, as explained in Section 4.3, will be necessary following initial Project site biological clearance surveys.

Animal health considerations to be evaluated in all desert tortoise handling endeavors of the VV2 Project are discussed in Section 4.4 of this plan. Public and private land options for desert tortoise translocation sites to be considered for this effort are presented in Section 4.5. Translocation site preparation needs and management are briefly outlined in Section 4.6. Lastly, Section 4.7 describes the monitoring and reporting tasks believed beneficial for this translocation effort.

4.1 Consistency with Recovery Plan and Incidental Take Permits

The techniques and translocation destination sites selected for use in this plan are based foremost upon ecological considerations, as well as upon information gleaned from previous desert tortoise translocations, offsite habitat availability and consistency with the Translocation Guidelines (Appendix 2) specified in the Desert Tortoise Recovery Plan (USFWS 1994).

Techniques identified in this document are consistent with the Desert Tortoise Recovery Plan to the degree feasible and will adhere to the ESA and CESA incidental take permits issued for the Project. No actions requiring tortoise handling, or that could result in incidental take, will occur until these permits are issued.

4.2 Occupied Habitat Clearance Surveys

Clearance surveys of occupied tortoise habitat in the Project's power plant and staging areas will be conducted in the September to October, 2008 timeframe. Permanent desert tortoise exclusion fencing (Figure 3) will be installed around the perimeter of occupied tortoise habitat prior to conducting these clearance surveys (Karl and Resource Design Technology 2006). Fence installation will be overseen by qualified biological monitors.

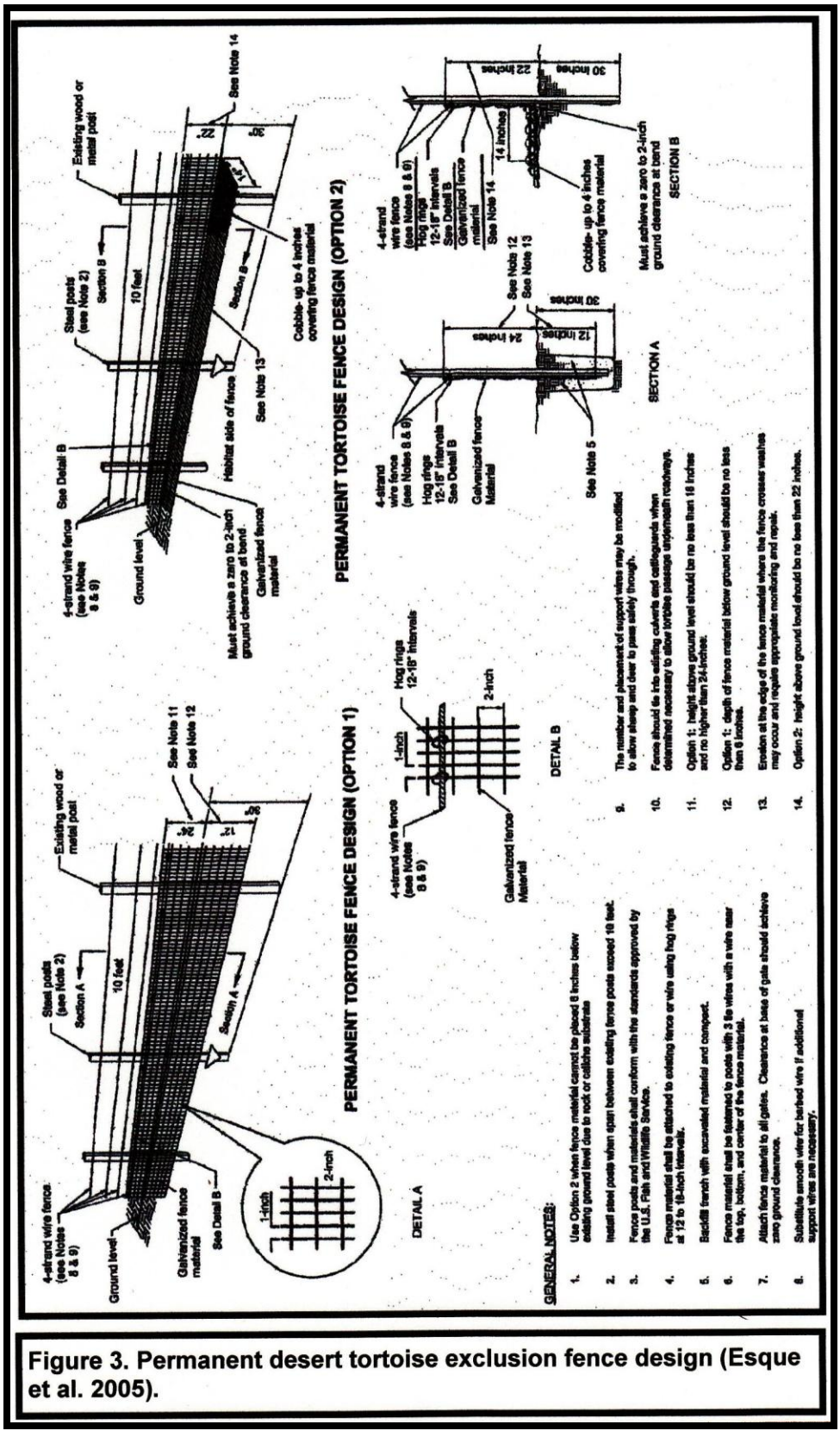

Figure 3. Permanent desert tortoise exclusion fence design (Esque et al. 2005).

Until site clearances have been completed, any temporary parking areas used by Project personnel will be first surveyed to ensure that no fresh tortoise burrows are present, then fenced using a temporary fence design, and re-surveyed to ensure that no tortoises have entered the enclosure. Temporary tortoise exclusion fencing will also be installed around the two primary equipment staging areas situated adjacent to the power plant site. Three-foot-wide, 1 by 2 inch mesh hardware cloth will be used as temporary fencing material, situated at 24" above ground, with the remaining material buried (http://www.fws.gov/ventura/sppinfo/protocols/DT Exclusion-Fence 2005.pdf.). Rebar will be used to secure this material every 4-5 feet and T-stakes will be placed every 8-10 feet along this fencing, or there will be a comparable design to ensure fence integrity. All installed fences will be monitored at least monthly, as well as during storms, with all necessary repairs made immediately.

Following site fencing, experienced biological monitors will perform a clearance survey of the Project site and staging areas. All clearances will occur when air temperatures at 5 cm above the ground surface are below 35°C, in accordance with established protocols (http://www.fws.gov/ventura/sppinfo/protocols/DT). Transect spacing between monitors will be appropriate for the vegetation present in the clearance area.

All burrows that could potentially host a tortoise are to be excavated with hand tools per the method prescribed by the Desert Tortoise Council's "*Guidelines for Handling Desert Tortoises during Construction Projects*" (1994, rev. 1999). At least three clearance passes should be made to consider the area effectively cleared of desert tortoises; with two of these clearance surveys coinciding with temperatures conducive to tortoise activity (Karl and Resource Design Technology 2006).

Where exclusion fencing is not installed for construction zones, such as along the linear utility features, surveys should be conducted immediately prior to construction taking place. Tortoises and burrows encountered should be mapped for further monitoring. Construction in these unfenced areas would be continually monitored by biologists who would remove tortoises out of harm's way to nearby suitable habitat (i.e., in the animals' home ranges). Those tortoises and the construction zone would continue to be monitored to ensure that the tortoises are not injured.

4.3 Desert Tortoise Handling and Transport

A biologist experienced with desert tortoise ecology and the principles of conservation biology will direct the VV2 construction monitoring and translocation efforts. Only persons permitted by USFWS and CDFG through the auspices of issued incidental take permits will handle desert tortoises. Handling will only be done using approved techniques (e.g., Desert Tortoise Council, 1994) that incorporate the most recent, pertinent research data (e.g., Brown 2003).

Animal gender, carapace length, mass, overall condition, capture site location and description will be recorded for all animals handled. All tortoises handled will also be photographed and closely examined for clinical signs of animal disease (discussed further in Section 4.4) at the time of capture. Each adult tortoise will then be fitted with a light-weight radio transmitter having a battery life of at least one year (e.g., Holohil model AI-2F).

While no tortoises or burrows are currently known to occur within the linear utility feature construction zones, clearance surveys will be conducted in these areas prior to surface disturbance to ensure no animals would be placed at-risk by Project work. Any tortoises discovered in proximity to linear utility areas during construction work will be closely monitored to ensure these animals do not enter into harm's way. These animals will not be moved unless found to be at-risk, and then will be moved to an unrestricted location within the Project right-of-way, or to adjacent lands where approved by the respective landowner; thereby allowing these animals to remain within their established home range. The use of temporary exclusion fence installation will be considered where necessary in linear utility areas to prevent tortoise entry into active construction areas.

Those tortoises identified during clearance surveys that are to be translocated, i.e., those residing within the main VV2 power plant site and associated staging areas, will be examined, measured and assigned a unique number upon capture. Conditional to incidental take permit approvals anticipated for May, 2008 issuance, desert tortoises will be marked using small epoxy number placement on the animal's shell. Blood samples of each tortoise to be translocated will also be acquired for use in animal health assessment.

Transmitter attachment (Boarman et al. 1998) will allow tortoises to be kept in place at the point of capture during blood testing and facilitate animal relocation following acquisition of blood testing results. Tortoises fitted with transmitters, if any, should be monitored at least monthly and batteries replaced as necessary. Following translocation and a planned telemetry monitoring period of approximately six months, transmitters would be removed according to regulatory agency-approved procedures.

Those tortoises found healthy and disease-free would be moved to the selected translocation site. Tortoises assessed as clinically ill or diseased (see Section 4.4) will be transported separately from healthy tortoises to an approved adoption entity or research facility, according to regulatory agency direction.

Transport of desert tortoises to the selected translocation site should only occur when ground temperatures consistently do not exceed 42°C, so that animals can safely find refuge in potentially unfamiliar areas without the added constraints of warmer temperatures.

Tortoises moved to the selected translocation destination area will be transported via individual, sterilized tubs with taped, sterilized lids. Upon arrival at the selected translocation destination site, transported animals should be placed at artificial burrow entrances.

However, as artificial burrows are infrequently used by a tortoise readily, animals should only be moved when there is sufficient time and at an ambient temperature for the tortoise to either accept an artificial burrow or create/find another initial shelter site. All tortoises moved to the translocation destination site will be monitored to ensure shelter is acquired by the animal before being left on their own.

Juvenile tortoises discovered during clearance surveys that are to be translocated, if any, will be placed in a protective fenced enclosure at the selected translocation site. After a two-week acclimation period in the final translocation area, this protective enclosure will be modified (Morafka et al. 1997) to allow for animal departure. Following translocated animal departure, enclosure materials would be removed.

Desert tortoise nests identified during Project site clearance survey burrow excavation after April 15 will be moved to a microsite (e.g., shrub cover, soil type, substrate cover, direction relative to nearest shrub, if relevant) as similar to the locality found as possible (e.g., same degree of vegetative cover, plant species, soil substrate, aspect) in the selected translocation area, using standard techniques (e.g., Desert Tortoise Council, 1994). Any desert tortoise nests found between November and April are unlikely to be viable (Karl and Resource Design Technology 2006) and will not be moved during clearance surveys. Desert tortoise nests translocated, if any, will be protected according to the standard techniques cited above for facilitating optimum hatching success and carefully monitored.

Monitoring reports (Section 4.7) will be prepared by a designated biologist monthly for the duration of Project construction work. Project progress and mitigation measure implementation [see Table 1: Implementation Schedule] will be recorded; including the capture and release locations of all tortoises found, animal measurements, and other relevant data. A final mitigation report will also be prepared at the conclusion of Project construction, following translocation program completion, summarizing monitoring data.

4.4 Animal Health Considerations

Several diseases have been documented in wild desert tortoise populations in the Mojave Desert. These include an upper respiratory tract disease (URTD) commonly associated with *Mycoplasma agassizii* (Rostal and Lance 2003); as well as a similar disease complex connected to *Mycoplasma testudinium* and proliferative pneumonia (Jacobson and Berry 2004); a cutaneous dyskeratosis shell disease (Christopher et al. 2002, 2003), and a herpes virus (Origgi et al. 2002).

Upper respiratory tract disease and similar complexes are likely exacerbated by stress (M. Brown, pers. comm. to Tracy et al. 2004), which can be imposed on desert tortoises by drought, habitat degradation, poor nutrition and/or animal density (Saethre et al. 2003). It is also likely that certain levels of stress predispose desert tortoises to acquiring one or more of these diseases.

It is conceivable that the stress of translocation may either exacerbate existing disease or immunocompromise an animal to contract disease more easily. Other diseased animals must, however, be in the translocation area for healthy translocated tortoises to become infected. The current rate of infection in wild tortoise populations throughout the western Mojave Desert is unknown, but has been observed to be approximately 3-5 % in three sites located several miles northwest of the site (A. Karl, field notes).

Mycoplasma agassizii transmission involves direct contact with an infected tortoise (Brown *et al.* 2003). Desert tortoises are believed to be contagious during periods of acute phases, when they have clinical signs (Brown *et al.* 2003). Such signs include a mucous nasal discharge, wheezing, conjunctivitis, and lethargy.

According to Schumacher et al. (1997) positive clinical signs statistically correlate with positive serology (i.e., exposure to *M. agassizii*). A mucous nasal discharge was the clinical sign that was the most reliable predictor (93% of tortoises with a mucous nasal discharge were seropositive), although it could be caused by other pathogens. Positive serology [i.e., *M. agassizii*-specific antibodies detectable by an enzyme-linked immunosorbent assay (ELISA)] is indicative that a tortoise has been exposed to *M. agassizii* (Schumacher *et al*. 1993). While positive serology does not necessarily indicate an active infection by *M. agassizii,* it has generally been observed that seropositive tortoises are infected with *M. agassizii* (Drs. Lori Wendland and Mary Brown, University of Florida Mycoplasma Research Lab, pers. comm. Dr. Alice Karl, 2004).

All tortoises handled as part of this Translocation Plan will be examined for clinical signs of URTD symptoms, visible signs of herpes lesions and cutaneous dyskeratosis (Berry and Christopher 2001), with resulting data recorded for each animal. Blood sampling and ELISA tests for exposure to *M. agassizii* will be performed on all tortoises identified for translocation. Following initial blood sampling, tortoises will be fitted with transmitters and not moved until ELISA test results have been acquired, as described in Section 4.3 above. Verified ill tortoises will not be placed in situations where contagion can spread to healthy tortoises. Seropositive tortoises can survive in controlled environments where care is provided (Rostal and Lance 2003), and any such animals identified as part of this Translocation Plan will be placed in appropriate adoption or research facilities.

4.5 Translocation Scheduling

Project permits and approvals are currently anticipated to be finalized in May 2008. After careful consideration of planned Project work timetables and tortoise translocation temperature constraints, the following translocation schedule (Table 1) has been identified that would allow for a July 1, 2008 surface disturbance initiation date:

Phasing initial power plant/staging area surface disturbance to avoid all tortoise burrows and use areas during late spring and summer months, with final tortoise translocation completed in the cooler temperatures of late September or early October, 2008. Tortoise surveys involving a single pass would be conducted in April 2008 to ascertain a July through early September work zone excluding tortoise burrows and use areas. While this scheduling would not allow for active work throughout the entire construction footprint during late spring and summer months, it would allow for some construction activity to begin as scheduled in a manner not requiring the concurrent translocation of affected tortoises.

Accordingly, temporary tortoise exclusion fencing separating the active work area from occupied tortoise habitat would be installed following permit issuance in May, 2008. Similar fencing would be installed along the access route, in a manner not requiring tortoise handling/burrow excavation. The temporary fence-enclosed area would then be re-surveyed with two passes prior to work activities, to ensure that no tortoises are in the area. Fencing of remaining tortoise burrow/use areas would occur in late September or early October 2008, when ambient temperatures would be suitable for tortoise translocation. This fencing would be followed by two tortoise clearance survey passes and subsequent tortoise translocation.

Environmental protection and incidental take permit measures identified for the Project would be applied throughout all fencing and translocation work efforts. A 40 to 50 acre, fenced temporary holding area on a portion of the Project area, as described in Section 4.6, would be used for translocation needs should the final translocation area not be secured by late September, 2008.

Table 1. Implementation Schedule (2008-09) for the VV2 Translocation Program.

Task	Year 2008 Month											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Select translocation site option. Finalize private land transfer & management; or secure public land use approvals.												
Survey Project area. Determine initial work zones at power plant/staging areas avoiding tortoise burrows/use areas.												
Install fencing around initial work zones and along access road. Re-survey enclosures for tortoises prior to construction work.												
Soil disturbance in initial work zones.												
Install remaining tortoise exclusion fencing at power plant/staging areas and re-survey for tortoises.												
Conduct clearance surveys of power plant/staging area. Mark tortoises, affix transmitters, sample blood & complete ELISA testing. Healthy tortoises translocated & seropositive tortoises adopted.												
Monitor translocated tortoises.												
Construction work throughout entire Project area.												

Table 1 Continued. Implementation Schedule (2008-09) for the VV2 Translocation Program.

Task	Year 2008 Month											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Closely monitor work in linear utility areas. Move at-risk tortoises to approved location.					▨	▨	▨	▨	▨	▨	▨	▨
Monitor and maintain exclusion fences.					▨	▨	▨	▨	▨	▨	▨	▨
Monthly reporting.					▨	▨	▨	▨	▨	▨	▨	▨

Task	Year 2009 Month											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Construction work[1].	▨	▨	▨	▨	▨	▨	▨	▨	▨	▨	▨	
Closely monitor work in linear utility areas. Move at-risk tortoises to approved location.	▨	▨	▨	▨	▨	▨	▨	▨	▨	▨	▨	
Monitor and maintain exclusion fences.	▨	▨	▨	▨	▨	▨	▨	▨	▨	▨	▨	
Remove temporary fencing & revegetate temporary impacts.											▨	
Monitor translocated tortoises.	▨	▨	▨									
Assess translocated tortoise health & remove transmitters.				▨								
Monthly reporting.	▨	▨	▨	▨	▨	▨	▨	▨	▨	▨	▨	

[1] Power plant construction work within permanently fenced Project area.

4.6 Translocation Area Options and Considerations

Three translocation areas (Figure 4; modified from BLM 2005) have also been identified for healthy, disease-free tortoises translocated from the VV2 Project, where tortoises would remain as individuals of a wild population. These translocation area options include private or public lands situated proximal to, or at a distance from, the VV2 Project area. An onsite holding area contingency option has also been identified for considered use of these options, should securing the final translocation area not be completed by September, 2008. This short-term holding area would encompass 40-50 acres of suitable habitat in the immediate power plant vicinity and would be enclosed with temporary fencing to ensure translocated tortoise protection.

Health-compromised or seropositive tortoises, as explained previously in this document, would be translocated to captive locations associated with conservation, educational or research endeavors, or made available for adoption by approved entities. A 10-acre fenced "head-starting" natural area currently under construction at Edwards Air Force Base (Mark Hagan, pers. comm. 2008), with agency approval, could be considered for conservation, research and educational purposes.

Several factors must be considered in selecting an appropriate translocation area. Primary considerations include habitat suitability, parcel size and land availability in the western Mojave Desert. Location away from recreational/residential impact areas and outside desert tortoise critical habitat, or "Desert Wildlife Management Areas" (Figure 5, BLM 2005) in accordance with translocation guidelines for the species (Appendix 2), is desirable. The selected translocation area should be situated adjacent to large blocks of native habitat unlikely to be developed in the near future and must be protected.

Ideal translocation lands would include suitable habitat that encompasses the home range of tortoises affected by the Project. Public lands situated proximal to the Project are subject to disposal under a Land Tenure Adjustment (LTA) program (Figure 6; modified from BLM 2005). Private lands situated in proximity face considerable future development pressure (Figure 7). Lands located within Mohave ground squirrel (*Spermophilus mohavensis*) historic range (Figure 8; modified from BLM 2005) are also desirable, as compensatory habitat for this species may be required for the VV2 Project.

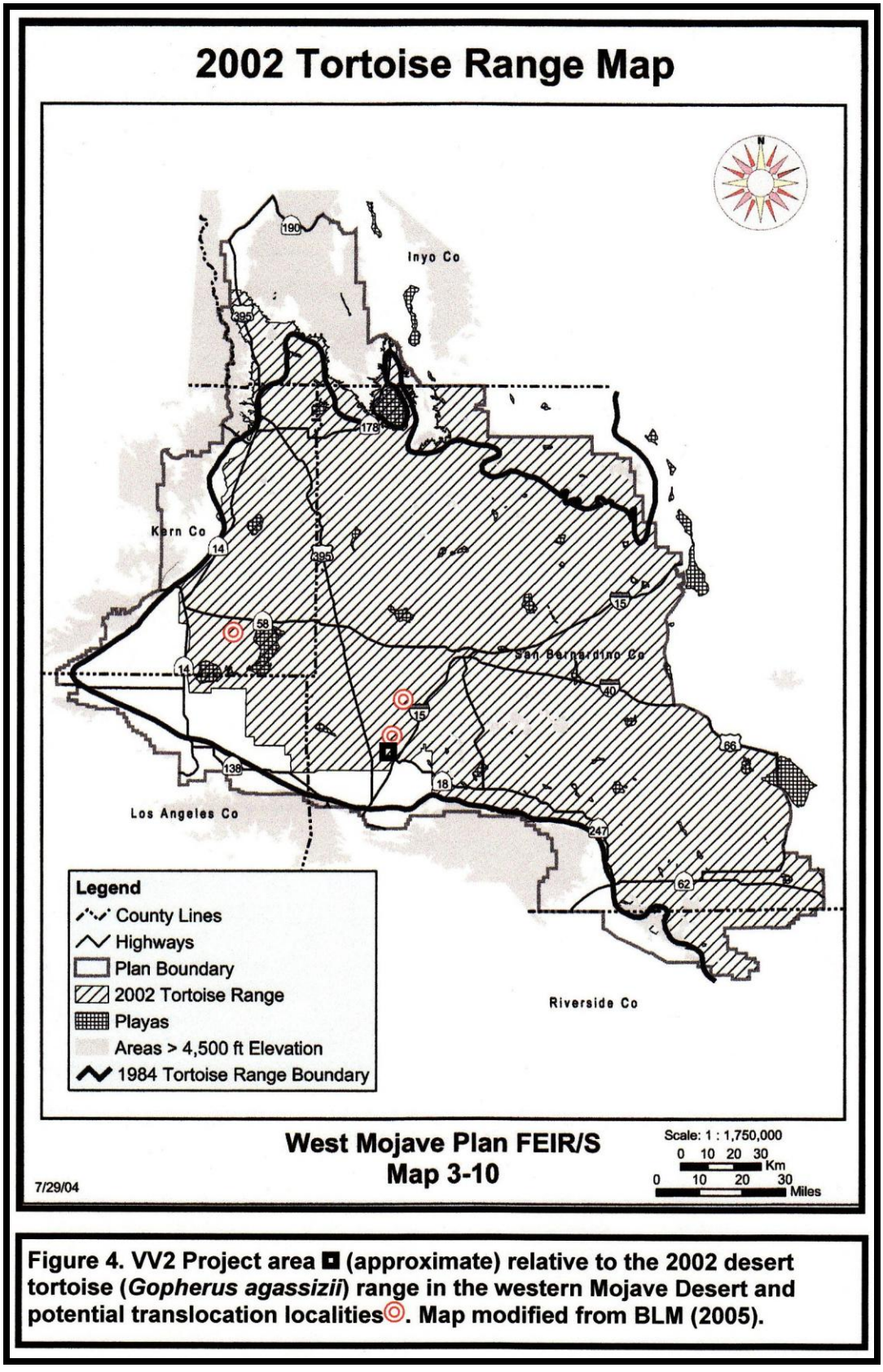

Figure 4. VV2 Project area ■ (approximate) relative to the 2002 desert tortoise (*Gopherus agassizii*) range in the western Mojave Desert and potential translocation localities◎. Map modified from BLM (2005).

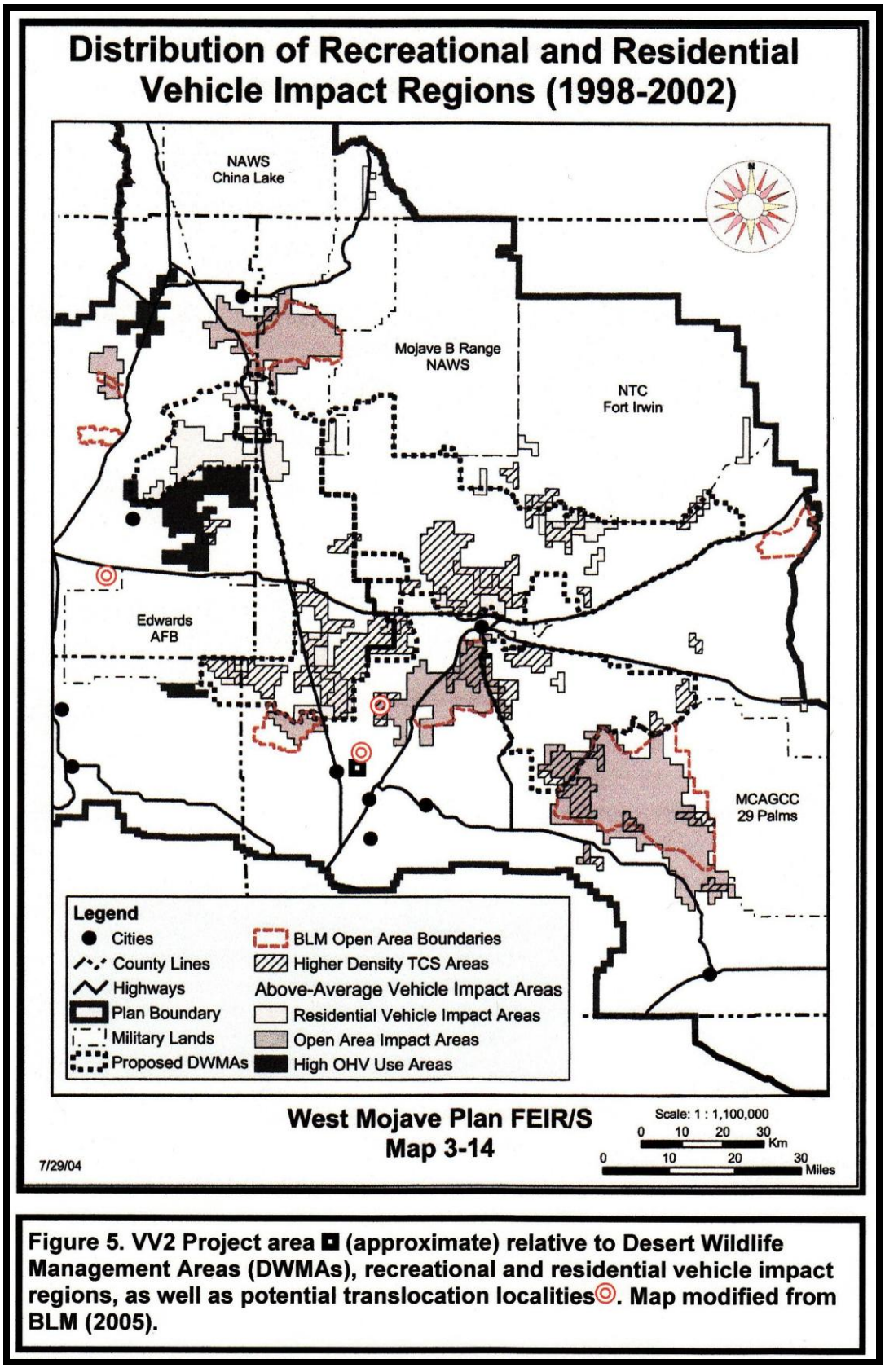

Figure 5. VV2 Project area ◘ (approximate) relative to Desert Wildlife Management Areas (DWMAs), recreational and residential vehicle impact regions, as well as potential translocation localities◎. Map modified from BLM (2005).

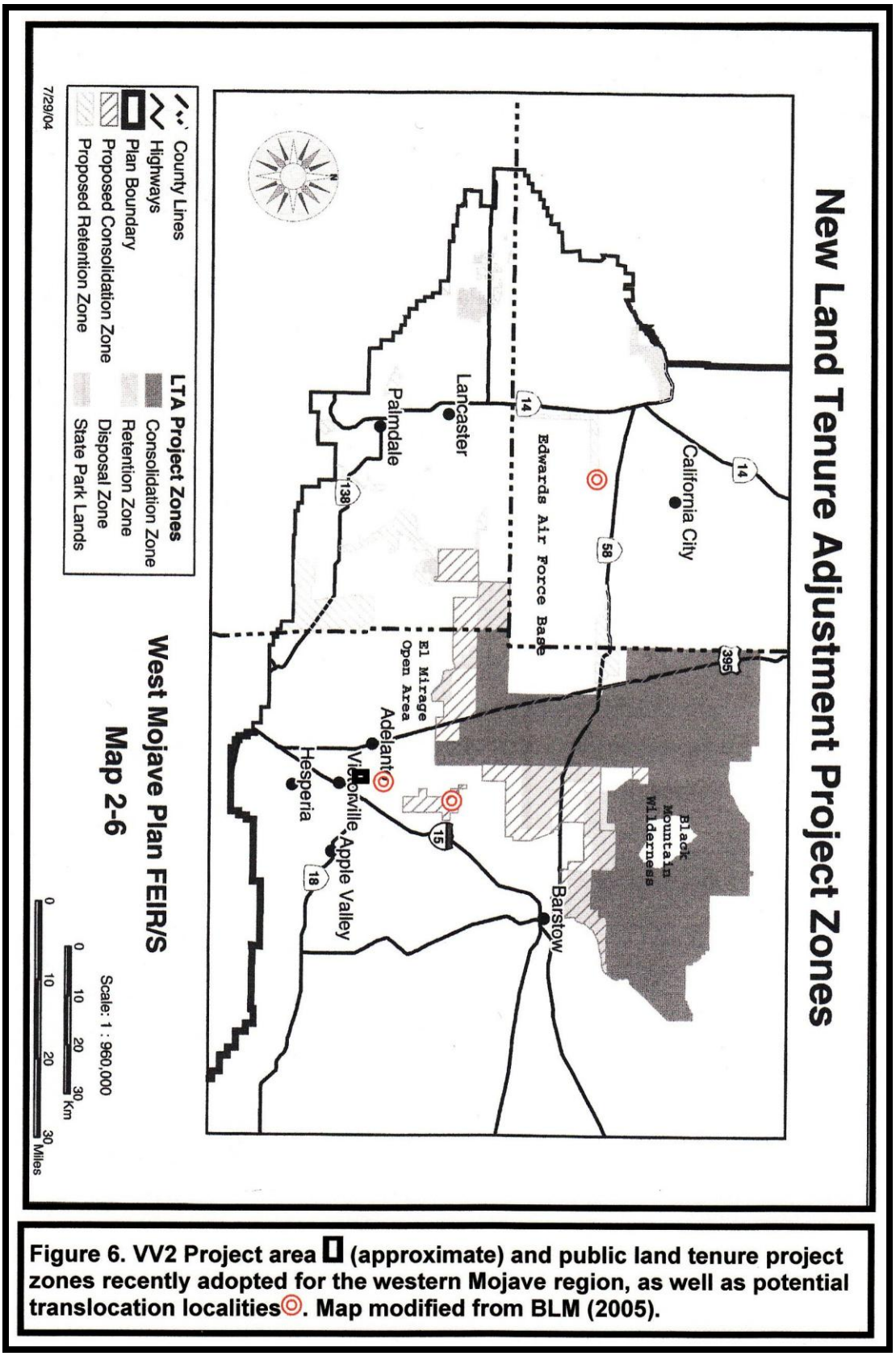

Figure 6. VV2 Project area ▯ (approximate) and public land tenure project zones recently adopted for the western Mojave region, as well as potential translocation localities◎. Map modified from BLM (2005).

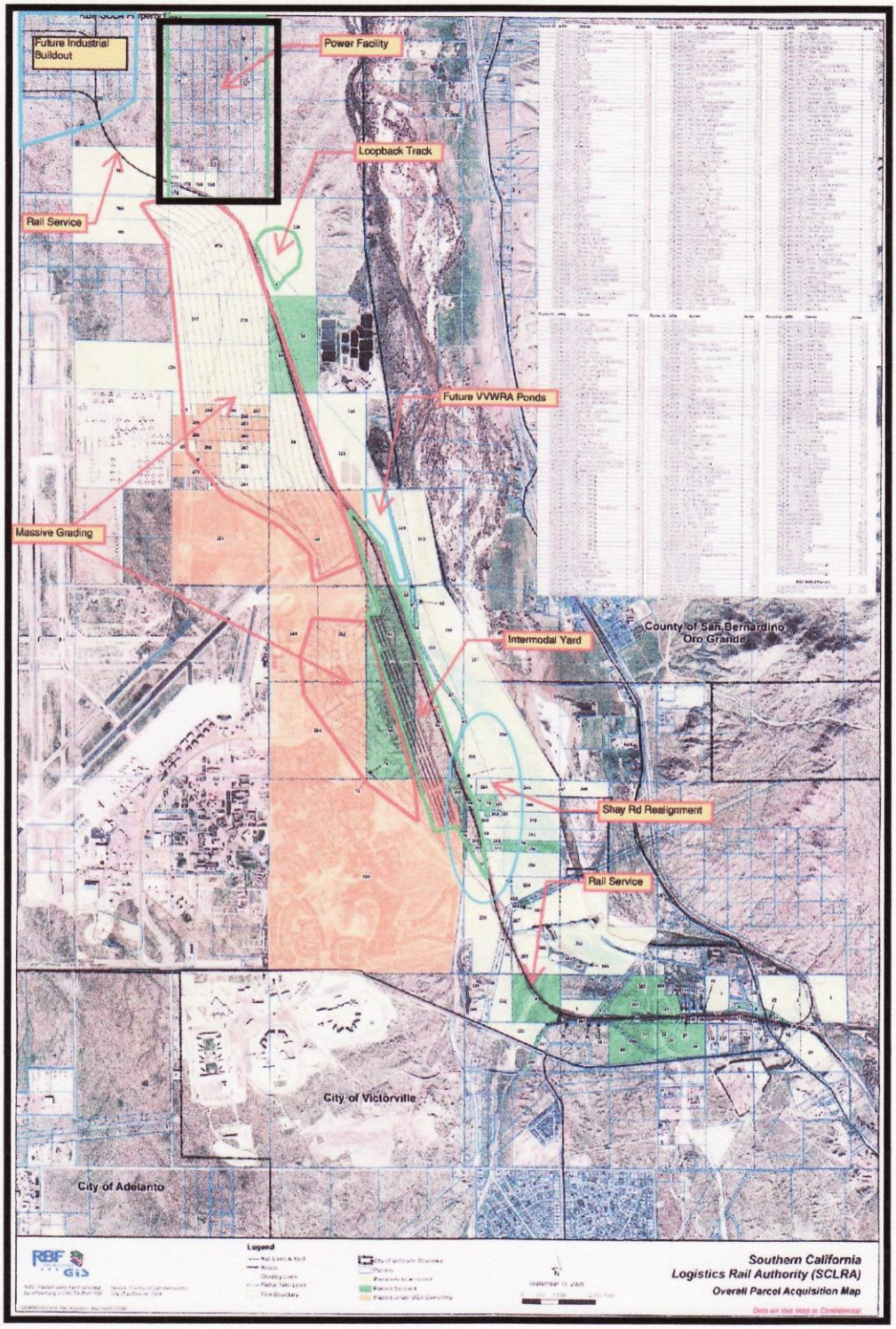

Figure 7. VV2 Project area ▯ (approximate) and proximal private land development planned. Map modified from RBF Consulting (2004).

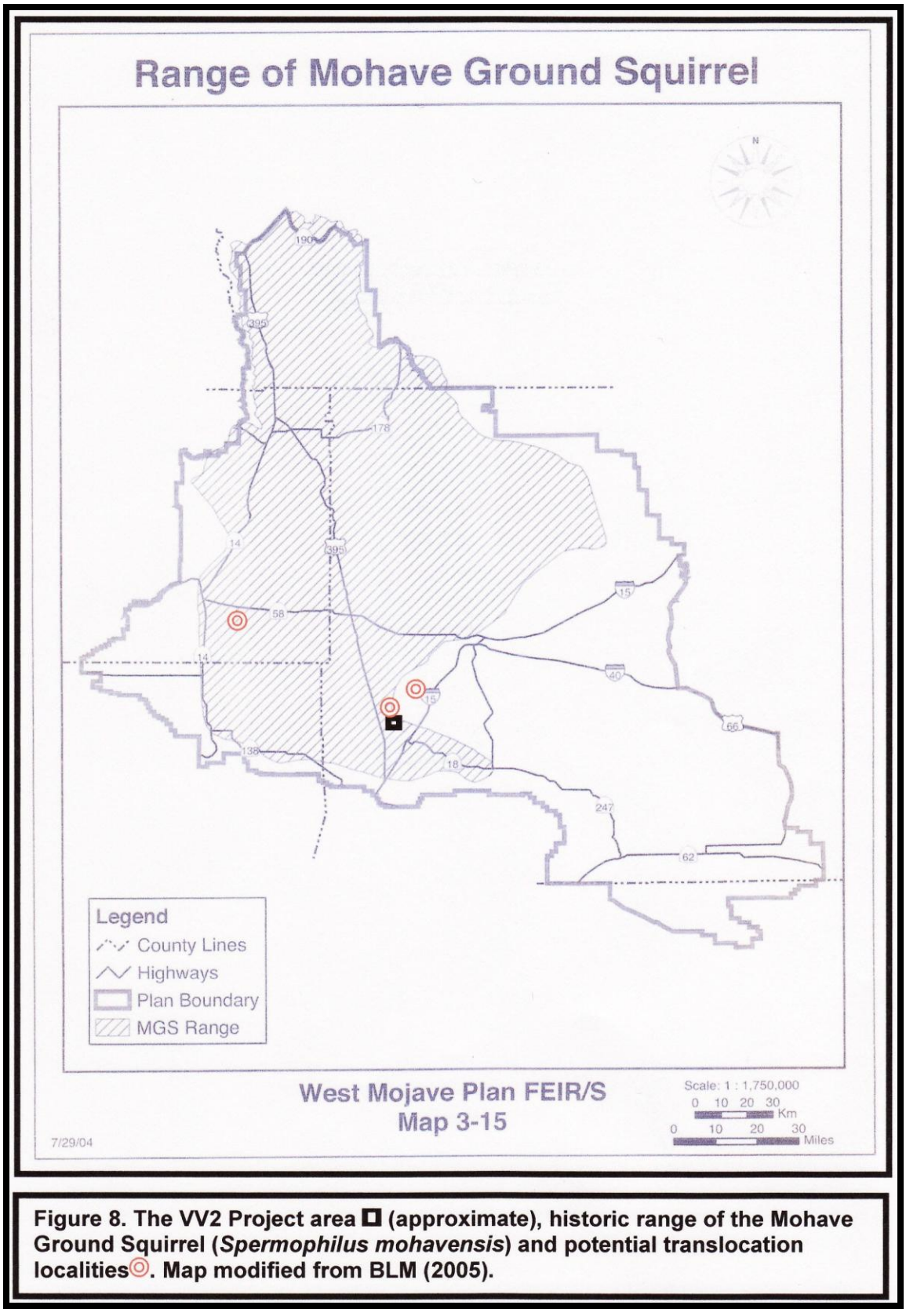

Figure 8. The VV2 Project area ◘ (approximate), historic range of the Mohave Ground Squirrel (*Spermophilus mohavensis*) and potential translocation localities◎. Map modified from BLM (2005).

Considerations in selecting a private land translocation site involve the time necessary to secure title to lands and the relative complexity of this task. Similarly, the time needed to fulfill BLM permitting requirements associated with the potential use of public land for translocation purposes or coordination tasks necessary for use of military lands are factors to be considered in selecting one of the translocation site options. The time and complexity of acquiring title to private lands, completing management agreements, and coordinating with various agencies can be considerable. Lands selected for translocation purposes must also be acquired and prepared prior to September, 2008.

Most importantly, the selected translocation area must support sufficient habitat to support the number of translocated tortoises that will use it. This consideration is dependent on the characteristics of the recipient tortoise population, the number and sex of animals to be translocated and the habitat quality of the translocation area.

Recent two-year telemetry studies in the western Mojave Desert (Harless et al. 2007) using the minimum convex polygon and fixed kernel (i.e., a statistical approach to measuring home range size) home range estimators have estimated the average home range for males at 45 ha (111 acres) and at 16 ha (39 acres) for females [N = 35; 20 males and 15 females]. Another similar telemetry study (Berry et al. 2007) using a kernel estimator (95% mean size) estimated the average home range for males at 39.8 ha (98 acres) [SD=28.3 ha (70 acres)] and at 9.4 ha (23 acres) [SD=6.6 ha (16 acres)] for females [N = 27; 16 males and 11 females]. Only small portions of home ranges for some alpha males overlapped and core portions of their ranges were found to be isolated from each other. This study also found female tortoise core areas to be separated from each other; and core areas for both sexes to vary by season (Berry et al. 2007).

As the translocation of two or more desert tortoises is anticipated from the VV2 Project's permanent disturbance area, access to 100 acres or more may be preferable in providing an optimum home range habitat base for one male tortoise and perhaps a secondary female or male tortoise. A smaller acreage base however, may very well provide adequate habitat for a small number of translocated tortoises, especially if these lands contain high quality habitat and are situated adjacent to other suitable habitat.

Summarily, the amount and quality of habitat in an available land parcel and its configuration relative to other habitat can be a limiting factor in translocation site selection. Public or private ownership also has bearing on what approvals, land preparation tasks, and management funding may be required to secure such lands.

On the basis of these considerations, the three translocation areas identified to date which retain translocated tortoises in a wild status can be summarized as:

1. **Private lands located in proximity to the Project area (Figure 9).** With this option, proximal private land would be acquired and managed long-term for translocated tortoises by the CDFG, or by an entity approved by CDFG and commissioned by the VV2 Project to manage the land. Potential future development impacts (Figures 6-7) would have to be carefully considered with this option.

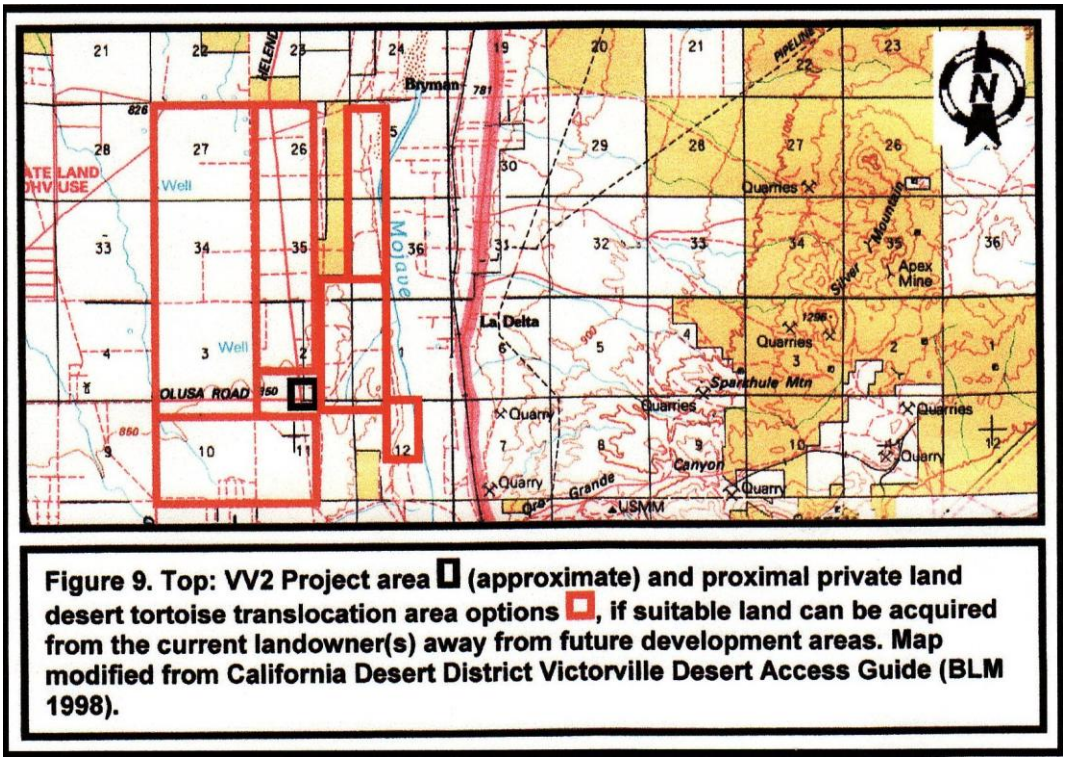

Figure 9. Top: VV2 Project area ▯ (approximate) and proximal private land desert tortoise translocation area options ▯, if suitable land can be acquired from the current landowner(s) away from future development areas. Map modified from California Desert District Victorville Desert Access Guide (BLM 1998).

If a suitable property could be acquired in this project-proximal locality, a conservation easement agreement or property title transfer could be finalized that defines the legal status of such land, subject to regulatory agency approvals.

This option would require a viable land management entity, an approved long-term management plan for acquired lands and the provision of a long-term property management endowment. An approved conservation easement or alternatively, a title transfer to CDFG, may also be required with this option.

Many private lands situated proximal to the Project that provide suitable desert tortoise habitat similarly provide habitat for the Mohave ground squirrel (MGS). If acquired translocation lands in the vicinity were managed according to management guidelines specified by CDFG, such translocation acreage would count towards fulfilling any MGS compensation habitat requirements associated with the Project.

2. **Private lands located in the western Mojave Desert, away from the Project area (Figure 10).** With this option, non-proximal private land would be acquired in the western Mojave Desert by the VV2 Project or by an entity approved by CDFG and commissioned by the VV2 Project to manage the land. Those considerations, management requirements and agency approvals described for translocation area option 1 above would similarly apply. Lands used for this purpose would have to be capable of supporting a small number of translocated tortoises.

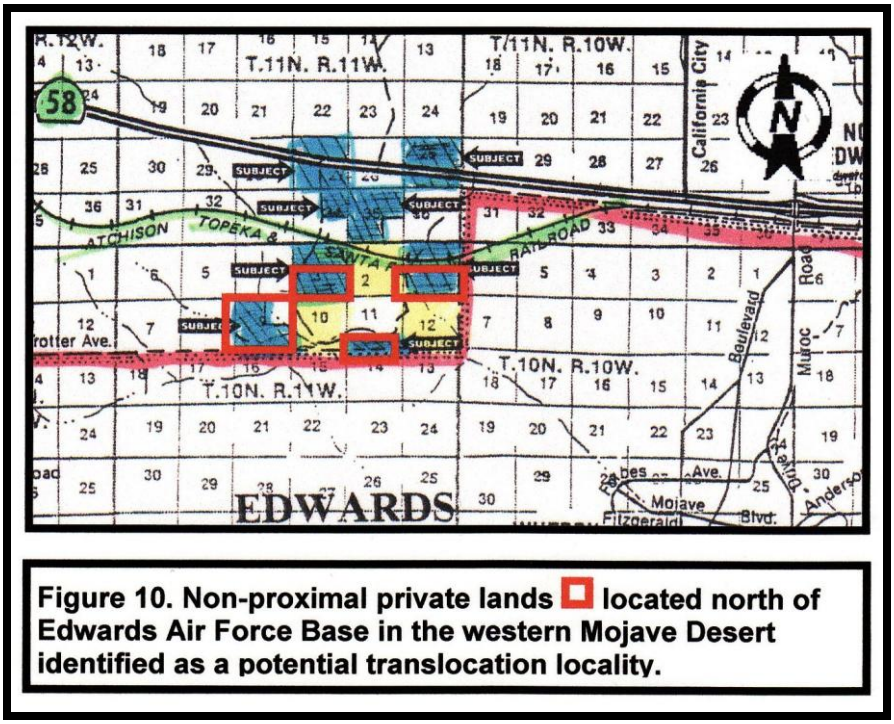

Figure 10. Non-proximal private lands ☐ located north of Edwards Air Force Base in the western Mojave Desert identified as a potential translocation locality.

Similar to option 1 above, a management endowment would be required in the use of a non-proximal private land translocation area. Should suitable MGS habitat be present on these lands, acquired acreage would count towards fulfilling any MGS compensation requirements. Organizations approved by regulatory agencies to provide mitigation banking services, including acquisition and management of private lands for conservation purposes, are known in the region.

3. **Public lands located in the vicinity of the VV2 Project area (Figure 11).** An agreement with the BLM's Barstow Field Office for use of public lands would be required for this option. Few large blocks of public land are located in the immediate VV2 Project area, although there are some smaller properties that may be adequate for the translocation of a few tortoises. Public lands in proximity are unclassified properties identified for disposal under the BLM's LTA Program or are limited use class public lands designated as desert tortoise critical habitat (Figure 6).

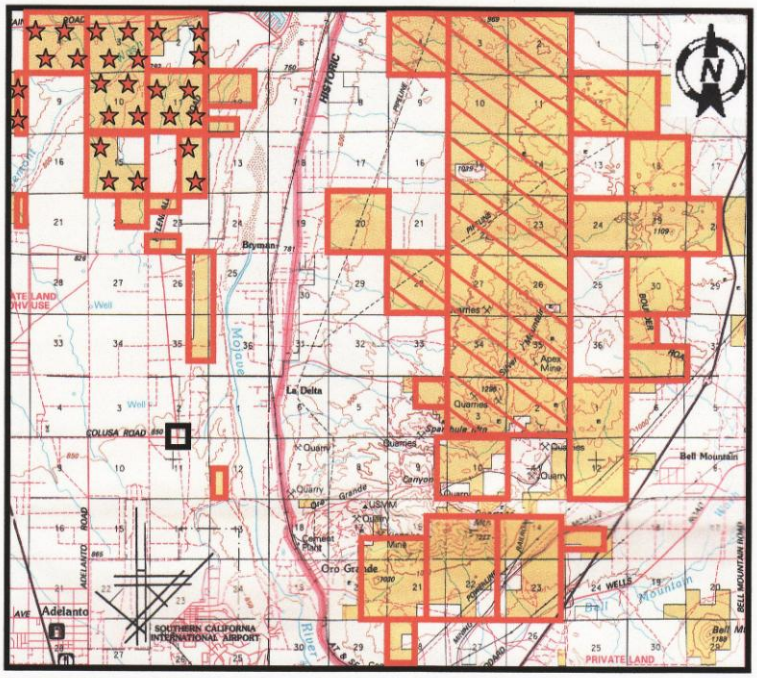

Figure 11. The VV2 Project area (approximate) and potential public land locality translocation options. Public lands (in yellow) both outside of desert tortoise critical habitat and designated for parcel retention per the current Land Tenure Adjustment Program (BLM 2005), are situated northeast of the Project. Map modified from California Desert District Victorville Desert Access Guide (BLM 1998).

Other limited use class public lands not designated as tortoise critical habitat do exist east of the Mojave River, as depicted in Figure 6. These lands could potentially serve as a viable desert tortoise translocation site, although they are situated outside currently recognized MGS habitat and in a high recreational use area (Figure 5).

A land tenure adjustment for those public lands situated proximal to the Project currently identified for LTA disposal may be needed to allay land disposition concerns, if these lands are considered for tortoise translocation. Realty processing fees, translocation area fencing and minimal monitoring costs would likely apply with use of any public land option, although habitat management endowment fees are seldom required for public lands relative to desert tortoises. Public lands also are seldom accepted by CDFG to satisfy MGS compensation acreage requirements.

In considering private land identified as potentially suitable for translocation of desert tortoises in the VV2 Project vicinity (Figure 9), it is important to note that varying development pressure is anticipated in the region (Figures 5-7). Private property located closest to the Project (Township 6 North, Range 5 West, Sections 1-3, 10-12; Township 7 North, Range 5 West, Sections 34, 35) which supports both MGS and tortoise habitat, is anticipated to face a high degree of adjacent land development pressure (BLM 2006). The use of these private lands as a permanent desert tortoise translocation area should be carefully considered in the context of this potential future development.

Private land located north of Edwards Air Force Base at Township 10 North, Range 11 West, Sections 1, 3, 9, 11; and Township 11 North, Range 11 West, Sections 25, 27, 34, 35 (Figure 10), which supports both MGS and tortoise habitat, is the preferred area for acquisition of compensation land and is unlikely to experience adjacent development pressure. However, some of these lands are situated near a portion of Highway 58 not currently fenced to exclude tortoises. Some of these potential translocation parcels are also bisected by an active railroad not currently fenced to exclude tortoises. Private properties located next to the Edwards Air Force Base boundary, away from both Highway 58 and the railroad, are preferred if this area is considered for translocation, to avoid potential sources of tortoise mortality.

Only a very few public land parcels are located in the immediate VV2 Project area and these are situated within designated desert tortoise critical habitat or in BLM's LTA disposal area (Township 7 North, Range 5 West, in Sections 26 and 35; and Township 6 North, Range 5 West, Section 12) , as depicted in Figure 11. A larger block of public lands is located east of the Mojave River, north of Silver Mountain and south of Brisbane Valley (Figure 12), that contains acreage identified for retention outside desert tortoise critical habitat (Township 7 North, Range 4 West, Sections 2, 3, 10-12, 14, 15, 22-24).

The above public lands are outside the range of MGS. Recreational use in this area is high, but suitable tortoise habitat is known to occur. BLM has identified this locality to potentially meet VV2 Project translocation needs (pers. comm. Dr. Larry LaPre, BLM, 2007).

Completion of a formal conservation easement or property title transfer to CDFG is usually required for use of private land translocation area. This generally entails the preparation of habitat characterization and hazardous material survey reports, as well as the provision of title processing fees (averaging $3,000/title deed). Real estate transfers or conservation easements for such purposes also necessitate the preparation of a property management plan and assignment of a commissioned entity to carry out plan prescriptions.

In addition, short-term habitat enhancements are sometimes needed for private lands to prepare conservation easement or transferred conservation properties for translocation and/or conservation management purposes. CDFG currently requires a fee $250/acre for short-term habitat endowment purposes. Third party mitigation banking entities often calculate such costs on a case-by-case basis.

The long-term management of any conservation easement or transferred property also entails various costs that require funding. CDFG currently requires a fee of $1,300/acre endowment for long-term habitat management of private/state land for desert tortoise and MGS. Third party mitigation banking entities generally require their own long-term habitat management endowment fee. However, the long-term endowment fee currently required by CDFG could conceivably be used for this purpose, with agency approval.

4.7 Translocation Site Management

Completion of a public land lease per BLM realty provisions and/or development of a Memorandum of Understanding with a local BLM field office would be necessary to utilize public lands for translocation purposes. Approval by BLM's California State Office is also required for any public land wildlife translocation.

Site-specific National Environmental Policy Act (NEPA) documentation would be required and any such lands must be managed per the agency's multiple-use mandate. BLM's West Mojave Plan (2005) has outlined long-term conservation objectives relative to the desert tortoise and MGS for lands to be retained in public ownership.

Acclimation to the selected translocation area by translocated tortoises would be facilitated if property habitat elements were similar to those found at the VV2 Project area. Any translocation area considered for the VV2 Project should be assessed on the ground for habitat suitability and potential long-term management constraints prior to a final selection being made.

4.8 Translocation Site Preparation

Once the translocation area is approved and acquired, a site characterization should be completed prior to moving tortoises onto the property. All tortoise sign occurring onsite and in the immediate (0.25 mile) zone of influence should be mapped and fully described. Fencing needs and other potential anthropogenic impact considerations should also be assessed at this time.

Two artificially-created burrows of approximately four to six feet-length should be prepared at the selected translocation site for each desert tortoise to be moved, using a gas-powered auger, prior to animal relocation. Concurrent with tortoise capture at the VV2 clearance area, surface soil and scat from each individual tortoise's capture burrow should be placed in the artificial burrow to which a tortoise will be introduced, to assist with acclimation (Karl and Resource Design Technology 2006).

Juvenile tortoises are more subject to depredation than are adults and should be provided with extended protection from predators if any are moved as part of the VV2 Project. Optimal protection can be facilitated through installation of a predator-proof enclosure. The size of the enclosure will depend on the number of tortoises found, but could start at 20 feet in diameter and be extended to approximately 50 feet if more than three juvenile tortoises are contained.

After these juvenile tortoises, if any, have become familiar with the site's odors and landmarks for two weeks, escape holes in the lower edge of the enclosure can be constructed (Morafka et al. 1997). Following juvenile tortoise departure, all enclosure material would be removed from the translocation site.

Closely monitoring tortoise movements immediately after translocation may facilitate the identification of potential problems at the selected site. Any management issues identified through this initial monitoring should be addressed in a timely fashion. Once tortoises have acclimated and established a home range at the translocation site, movement away from this use area is anticipated to be minimal. At the Hyundai Motor America Desert Tortoise Translocation Study Site, two of 14 translocated tortoises moved approximately 400 meters away from the fenced translocation site within 16 months following removal of the tortoise fencing (Karl 2007). At a second study site, two of 12 translocated tortoises subsequently moved offsite within approximately eight months following fence removal (Karl, field notes).

4.9 Translocation Animal Monitoring and Reporting

Monitoring of translocated tortoises will provide useful information for future translocation actions. Translocated desert tortoises would be monitored by qualified personnel using telemetry and casual observation for five days/month during September, October and November, 2008 as well as in March-April 2009. The focus of this monitoring effort would be to observe how translocated animals respond to their new habitat. Another primary emphasis of monitoring would be to ensure translocation site management issues are identified and rectified quickly. Monitoring observations would be reported to state and federal regulatory agencies on a monthly basis.

Information on animal movements, habitat use, behavioral interactions and survival of translocated tortoises would be recorded throughout the course of this monitoring effort. Overall health and movements of translocated tortoises would be tracked over a six month telemetry period, in comparison with health indices assessed at the point of capture. Survival over the monitoring period would be recorded.

While collected monitoring information would be considered anecdotal in nature, such data would be analyzed in a manner designed to formulate prescriptions for future translocations involving small numbers of tortoises.

Monthly reports would include an analysis of all pertinent desert tortoise health and habitat use observations, data on animal movements recorded from telemetry study, as well as any issues encountered in translocation property management. The Project's final translocation monitoring report would include recommendations on how to improve techniques and conservation property management to enhance translocation program success.

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Appendix 5.

Biological Opinion for the Victorville 2 Hybrid Power Project, San Bernardino County, California (1-08-07-F-67) (U.S. Fish and Wildlife Service 2008)

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ventura Fish and Wildlife Office
2493 Portola Road, Suite B
Ventura, California 93003

TAKE PRIDE IN AMERICA

IN REPLY REFER TO:
2007-F-0252

January 23, 2008

Gerardo C. Rios
Chief, Air Permits Office
U.S. Environmental Protection Agency
75 Hawthorne Street
San Francisco, California 94105

Subject: Biological Opinion for the Victorville 2 Hybrid Power Project, San Bernardino County, California (1-8-07-F-67)

Dear Mr. Rios:

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion based on our review of the Environmental Protection Agency's proposal to issue a prevention of significant deterioration permit to the City of Victorville for the construction and operation of the Victorville 2 hybrid power project. At issue are the effects of the construction of this facility on the federally threatened desert tortoise (*Gopherus agassizii*). This document was prepared in accordance with section 7(a)(2) of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.) (Act). Your request for formal consultation was dated June 11, 2007.

This biological opinion is based on information in the biological assessment for the proposed facility (AMEC Earth and Environmental 2007), the addendum to the biological assessment (AMEC Earth and Environmental 2008a), and various reports and publications. A complete administrative record of this consultation is on file at the Service's Ventura Fish and Wildlife Office.

The proposed action is not located within the boundaries of critical habitat of the desert tortoise and will not affect the nearby Fremont-Kramer Critical Habitat Unit. Consequently, we will not discuss critical habitat again in this biological opinion.

CONSULTATION HISTORY

In its June 11, 2007, correspondence, the Environmental Protection Agency requested our concurrence that the proposed action is not likely to adversely affect the federally endangered least Bell's vireo (*Vireo bellii pusillus*) and southwestern willow flycatcher (*Empidonax traillii*

extimus). Riparian habitat in the Mojave River that could be used by these two species will not be affected by construction. Small amounts of salts would be present in the evaporative mist emitted by the power plant's cooling tower. These salts are unlikely to adversely affect riparian habitat because the amount of salt (less than 0.09 microgram per cubic meter) that would potentially reach the portion of the Mojave River situated closest to the project is insignificant, particularly in relation to the amount of salt that naturally occurs in the river (AMEC Earth and Environmental 2008a). Additionally, the plant species that are most important to the least Bell's vireo and southwestern willow flycatcher are deciduous; consequently, the leaves would not remain on the plants sufficiently long for the small amount of salt to build up and cause adverse effects. For these reasons, we concur with the Environmental Protection Agency's determination that the proposed action is not likely to adversely affect the least Bell's vireo or southwestern willow flycatcher.

The Environmental Protection Agency also requested our concurrence that the proposed action is not likely to adversely affect the bald eagle (*Haliaeetus leucocephalus*). The Service recently removed the bald eagle from the list of threatened and endangered species; consequently, we no longer include it in section 7(a)(2) consultations.

We provided a draft biological opinion to the Environmental Protection Agency and California Energy Commission on December 12, 2007 (Service 2007). The Environmental Protection Agency and California Energy Commission provided comments on the draft biological opinion by electronic mail on December 27, 2007, and January 2, 2008, respectively (Environmental Protection Agency 2007 and California Energy Commission 2008). The City of Victorville provided an addendum to the biological assessment and comments on the draft biological opinion by electronic mail on January 22, 2008 (AMEC Earth and Environmental 2008a, b). We incorporated their comments into this final biological opinion, as appropriate.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

Description of the Proposed Facility

The City of Victorville proposes to construct and operate a hybrid electrical facility consisting of natural gas-fired power plant integrated with solar thermal generating equipment using parabolic collector arrays. The proposed project would be located on primarily undeveloped lands within the northernmost portions of the City of Victorville, adjacent to the Southern California Logistics Airport.

The footprint of the proposed power plant would total 338 acres; developed areas and non-native grassland cover 53 acres of this total (AMEC Earth and Environmental 2008b). An additional 50 acres of temporary-use lands would be required for construction staging adjacent to the proposed power plant. One 30-acre construction staging area would be located north of Colusa Road and west of Helendale Road; with a second 20-acre staging area located south of Colusa Road and

east of Helendale Road. Utility features would occupy approximately 107 acres; developed and disturbed areas cover approximately 4 acres of this total (AMEC Earth and Environmental 2008b). These features include: 4.3 miles of a new 230-kilovolt electric transmission line to connect to the existing High Desert Power Plant transmission path; 5.7 miles of a new 230-kilovolt electric transmission line in an existing utility right-of-way corridor, involving the installation of new lines on existing towers and installation of 3 new transmission towers; 11 miles of a new 230-kilovolt electric transmission line in an existing utility right-of-way and relocation of 6.6 miles of a 115-kilovolt electrical transmission line within the same existing utility right-of-way; 2.9 miles of potable water pipeline; 1.5 miles of reclaimed water supply pipeline, connecting the proposed power plant site to the Victorville Wastewater Reclamation Authority facility; 1.4 miles of sanitary wastewater pipeline, connecting the proposed power plant site to an existing sewer main; a natural gas supply pipeline; and a backup water supply pipeline. Map 8 (sheet 1 of 4) in appendix 1 of the biological assessment depicts the location of these facilities.

Primary vehicle access to the proposed power plant site would be via Adelanto, Colusa and Helendale Roads north from Air Expressway. Approximately four miles of this access route north from Air Expressway is currently unpaved and would be minimally graded and paved to facilitate vehicle travel to the project site (AMEC Earth and Environmental 2008b). Existing roads provide much of the vehicular access needs associated with the proposed linear features; any new vehicle access is included in the acreage of surface disturbance described in the previous paragraph.

Potable water required by the proposed project would be provided via a connection with the City of Victorville's existing water delivery system (Egan 2007, AMEC Earth and Environmental 2008a). This pipeline would be placed in a 2.90mile-long by 85-foot-wide right-of-way following the existing Perimeter Road for part of the way and the route of the City of Victorville's planned future extension of Perimeter Road for the remainder of the route between the project area and the entrance to the High Desert Power Project.

The reclaimed water and sanitary wastewater pipelines would be installed together within a shared right-of-way, located adjacent to the northernmost portion of the proposed electrical transmission line; the surface disturbance within this right-of-way would be a maximum of 50 feet wide (Egan 2007). The construction footprint within unshared portions of the right-of-way would be 25 feet wide.

The rights-of-way for linear features would be brushed and cleared for up to the entire width depending on the requirements at given locations (Egan 2007). For example, less surface disturbance will be required for the transmission line than for the pipelines, because surface disturbance for the former largely will be confined to transmission tower footings and pulling sites. Surface disturbance will be minimized to the degree practicable for construction activity of these linear utility features.

Construction activities are scheduled to commence during the summer of 2008. Commercial operation is scheduled to begin in the summer of 2010.

Unless amended pursuant to the regulations, the prevention of significant deterioration permit will be in effect for the life of the Victorville 2 power plant. The Environmental Protection Agency regulations obligate the source to construct and operate in accordance with the application submitted and with the terms of any approval to construct (40 *Code of Federal Regulations* 52.21(r)). In previous cases similar to this project where the prevention of significant deterioration permit has been the subject of a section 7 consultation, the Environmental Protection Agency has required that the permit applicant amend its permit application to include a commitment to implement all the reasonable and prudent measures, the terms and conditions, and the notification requirements contained in the biological opinion. The obligation to comply with these commitments becomes part of the terms of approval to construct (Lee 2008).

Measures Proposed to Protect Desert Tortoises

Prior to the onset of ground-disturbing activities, the City of Victorville will complete a 100 percent clearance survey of work sites for desert tortoises as described in Service (1992b). The goal of the survey is to remove all desert tortoises from portions of the action area that would be disturbed by heavy equipment and subsequent development (Egan 2008). The power plant site will be permanently fenced and the two adjacent staging areas will be temporarily fenced (Egan 2007). Careful monitoring will be conducted in these areas while fencing is being completed and until such time as affected desert tortoises are removed to the approved translocation area. Construction activities in the utility areas will not be fenced, but will be closely monitored to ensure desert tortoises are not killed or injured.

All burrows found during clearance surveys, whether occupied or vacant, will be excavated by the authorized biologist and collapsed or blocked to prevent desert tortoises from re-entering them. All burrows will be excavated with hand tools to allow removal of desert tortoises and their eggs. The authorized biologist will conduct all handling and excavations, including nests, in accordance with Service-approved protocols (Desert Tortoise Council 1999).

Desert tortoises will be treated in a manner to ensure that they do not overheat or exhibit signs of overheating (e.g., gaping, foaming at the mouth, etc.); desert tortoises will not be placed in a situation where they cannot maintain surface and core temperatures necessary to their well-being. Desert tortoises will be kept shaded at all times until it is safe to release them.

Each desert tortoise will be handled with new disposable latex gloves. After use, the gloves will be properly discarded and a fresh set used for each subsequent handling of a desert tortoise.

No desert tortoise will be captured, moved, transported, or purposely caused to leave its burrow for whatever reason when the ambient temperature is above 95°F. Ambient air temperature will

be measured in the shade, protected from the wind, at a height of 2 inches above the ground surface.

If the ambient air temperature exceeds 95°F during handling or processing, desert tortoises will be kept shaded in an environment that does not exceed 95°F, and the animals will not be released until ambient air temperature declines to below 95°F.

All surface-disturbing actions on undisturbed lands will be monitored. Each piece of heavy equipment traversing habitat within utility corridors will be assigned a biological resource monitor.

The City of Victorville will submit annual reports to the Service until construction work is complete; a final report to be submitted within 60 days of completion of construction (Egan 2007). The field contact representative or other representative of the City of Victorville will contact the Service and Environmental Protection Agency promptly if changes to the proposed action or protective measures are needed or if a desert tortoise is killed or injured.

All personnel working during the construction, operation or maintenance of the proposed project will be required to attend an environmental awareness and project approval compliance training. A qualified biologist familiar with the desert tortoise will present this training. A fact sheet summarizing the life history and legal status (including the penalties for violating the Act) of the desert tortoise will be provided to all project personnel who attend the environmental awareness training; the fact sheet will also list the terms and conditions of all permits for the project. The fact sheet will also describe the protocol for reporting the death, injury, or disturbance of the desert tortoise. Personnel working onsite will also be briefed on appropriate protocol to follow in reporting and cleaning up all potentially hazardous material such as petroleum and radiator fluid spills, and procedures to follow in reporting wildfire sightings. Personnel will be required to sign and date an attendance sheet confirming this training was completed.

Construction and maintenance personnel in areas that have not been fenced to exclude desert tortoises will be required to inspect under vehicles prior to moving the vehicle. If a desert tortoise is found beneath a vehicle, the vehicle will not be moved until the desert tortoise has left of its own accord and this movement has been confirmed by a biological monitor or authorized biologist or until an authorized biologist has removed the desert tortoise from harm's way (Egan 2007).

All desert tortoise observations will be reported to the authorized biologist and, subsequently, to the field contact representative.

If a desert tortoise is in imminent danger with immediate death or injury likely (such as from an approaching vehicle or equipment) and an authorized biologist or biological monitor is not available, any worker associated with the project will capture the animal and contact an authorized biologist or biological monitor immediately. The worker will maintain the desert tortoise in his or her possession until an authorized biologist or biological monitor assumes

possession. The education program provided to all workers will fully describe this contingency (Egan 2007b).

Upon locating or receiving a report of a dead or injured desert tortoise in the project area, the field contact representative or appointed agent (designated by the City of Victorville prior to any surface-disturbing activities onsite (Egan 2007)) will be required to immediately notify the appropriate representatives of the California Department of Fish and Game and Service.

All work activities will be restricted to specifically approved and clearly marked areas.

A field contact representative will be designated to oversee and be responsible for compliance with the conditions of project approval. This field contact representative will be on site or easily accessible during all project activities and will have the authority to halt all project activities that are in violation of project's approval conditions. An authorized biologist will also have the authority to temporarily halt those project activities that could compromise adequate clearance or biological monitoring. Project activities that might endanger a desert tortoise will cease if an individual of the species is found in an active work area. Project activities may resume after an authorized biologist has removed the desert tortoise from danger or after the animal moves to a safe area on its own volition (AMEC Earth and Environmental 2008b).

Only water or gravel will be employed to control fugitive dust emissions. Construction and maintenance vehicles will observe a 25-mile-per-hour speed limit on all unpaved roads in the project area to reduce emissions of fugitive dust.

To reduce the likelihood of construction vehicles striking desert tortoises on the access roads to the power plant site, temporary fencing to exclude desert tortoises will be installed in disturbed areas of the road shoulder and a biological monitor will be on-call to deal with issues that emerge during construction (if any). Because the fencing should prevent most desert tortoises from entering the access roads, a speed limit of 25 miles per hour will be set on these roads (Bachrach 2008). These measures were proposed and agreed upon during a conference call on December 20, 2007.

Temporary fencing to exclude desert tortoises will be installed along both shoulders of the access route under the oversight of qualified biological monitors. Fencing will be placed to exclude all desert tortoise burrows from the road corridor. Fencing at the open ends will include some shrubs inside the road corridor to protect any desert tortoises that may enter the road corridor at these sites, but no shrubs will be disturbed during construction of the temporary fence to preclude the loss of habitat (AMEC Earth and Environmental 2008b).

All fences will be maintained throughout their intended life. Fences will be monitored monthly, or more often as needed, as well as during or after all storms. All fence breaches will be repaired immediately with appropriate fencing material (AMEC Earth and Environmental 2008b).

Prior to mobilization of construction activities on site, all vehicles and equipment will be inspected to ensure these vehicles and equipment are operating correctly and free of fluid leaks. Equipment will be inspected daily to make sure that fluid discharges do not occur.

A trash abatement program will be initiated during pre-construction phases of the project and continue through its duration. Trash and food items will be contained in closed containers and removed regularly (at least once a week) to avoid attracting predators such as common ravens, coyotes, and feral dogs.

The authorized biologist will be onsite during the periods when desert tortoises are expected to be active to ensure construction activities are in compliance with protective measures relevant to the desert tortoise and to ensure that any desert tortoises wandering on to the construction site via unfenced areas will not be inadvertently killed or injured.

The authorized biologist will be responsible for ensuring: (a) that a litter-control program is enforced; (b) that desert tortoise exclusion fences are maintained where applicable; (c) that disturbance of desert tortoise habitat is restricted to authorized areas; (d) that all equipment and materials are stored within the boundaries of previously disturbed areas; (e) that all vehicles associated with construction activities remain within the proposed construction zones; and (f) compliance with the terms and conditions of the biological opinion.

Project activities that might endanger a desert tortoise will cease if an individual of the species is found in an active work area. Project activities may resume after the authorized biologist removed the desert tortoise from danger or after the animal moves to a safe area on its own volition.

Any nesting of common ravens (*Corvus corax*) encountered during construction, operation or maintenance of the project will be reported to the Service and California Department of Fish and Game (Egan 2007). The removal of common raven nests from facilities, when determined necessary in consultation with the Service and California Department of Fish and Game, will occur during the inactive nesting season.

Upon completion of construction activities, areas that were temporarily disturbed will be revegetated in accordance with a project revegetation and restoration plan. This plan will be completed prior to commencement of surface-disturbing activities and is to include: salvage of most cactus, all Joshua trees (*Yucca brevifolia*) identified by the City of Victorville as appropriate for transplantation, and some native shrubs to be used in "vertical mulching" efforts (Egan 2007); planting of salvaged shrubs and cactus; relocation of Joshua trees; placing rocks and vegetative debris into areas where the soil has been disturbed; raking out of vehicle tracks; hand-broadcast seeding of native plants (with the seeds collected locally); and a focused weed control program for targeted non-native, invasive plant species such as Russian thistle (*Salsola tragus*) and certain mustards (*Brassica* spp) (AMEC Earth and Environmental 2008b). Salvaged plant material will either be stored onsite in areas of temporary surface disturbance or cared for at an offsite nursery, until such time as needed for revegetation.

A qualified biologist will monitor all revegetation efforts to minimize impacts upon special status species potentially occurring in the vicinity of the proposed project. The revegetation plan will specify the time period at which monitoring will occur.

The biological assessment contains general details of a translocation plan. Desert tortoises found at the site of the proposed power plant and the two staging areas will be translocated to a protected site within the general region. Desert tortoises that are found along the utility lines may also be translocated to these areas, depending upon the specific circumstances. Some potential exists that these animals may be placed in a captive breeding or research facility. The Service, California Department of Fish and Game, and City of Victorville agreed, during the course of formal consultation, that the details of the translocation plan could be developed after the consultation was completed but prior to surface disturbance associated with development of the proposed project.

The City of Victorville has proposed to compensate for the loss of habitat for the desert tortoise as a result of the proposed project. The biological assessment notes that the "... specific amount of compensation acreage to be acquired and managed will be determined in negotiations with, and approved by, (the Service) and (California Department of Fish and Game);" it also states that "(a)n implementation agreement with a mitigation banking and conservation land management entity approved by (the Service) and (California Department of Fish and Game) will be finalized to ensure appropriate compensation habitat was acquired and managed over the long-term for the benefit of the desert tortoise...." Section 7(a)(2) of the Act and its implementing regulations do not address compensation for impacts to federally listed species or their habitats. Consequently, the Service has no regulatory role in these discussions. We note the City of Victorville's proposal herein because the compensation is part of the proposed action.

STATUS OF THE DESERT TORTOISE

Basic Ecology of the Desert Tortoise

The desert tortoise is a large, herbivorous reptile found in portions of the California, Arizona, Nevada, and Utah deserts. It also occurs in Sonora and Sinaloa, Mexico. In California, the desert tortoise occurs primarily within the creosote, shadscale, and Joshua tree series of Mojave desert scrub, and the lower Colorado River Valley subdivision of Sonoran desert scrub. Optimal habitat has been characterized as creosote bush scrub in which precipitation ranges from 2 to 8 inches, diversity of perennial plants is relatively high, and production of ephemerals is high (Luckenbach 1982, Turner and Brown 1982, Schamberger and Turner 1986). Soils must be friable enough for digging of burrows, but firm enough so that burrows do not collapse. In California, desert tortoises are typically associated with gravelly flats or sandy soils with some clay, but are occasionally found in windblown sand or in rocky terrain (Luckenbach 1982). Desert tortoises occur in the California desert from below sea level to an elevation of 7,300 feet, but the most favorable habitat occurs at elevations of approximately 1,000 to 3,000 feet Luckenbach 1982, Schamberger and Turner 1986).

Desert tortoises may spend more time in washes than in flat areas outside of washes; Jennings (1997) notes that, between March 1 and April 30, desert tortoises "spent a disproportionately longer time within hill and washlet strata" and, from May 1 through May 31, hills, washlets, and washes "continued to be important." Jennings' paper does not differentiate between the time desert tortoises spent in hilly areas versus washes and washlets; however, he notes that, although washes and washlets comprised only 10.3 percent of the study area, more than 25 percent of the plant species on which desert tortoises fed were located in these areas. Luckenbach (1982) states that the "banks and berms of washes are preferred places for burrows;" he also recounts an incident in which 15 desert tortoises along 0.12 mile of wash were killed by a flash flood.

Desert tortoises are most active in California during the spring and early summer when annual plants are most common. Additional activity occurs during warmer fall months and occasionally after summer rain storms. Desert tortoises spend most of their time in the remainder of the year in burrows, escaping the extreme conditions of the desert; however, recent work has demonstrated that they can be active at any time of the year. Further information on the range, biology, and ecology of the desert tortoise can be found in Burge (1978), Burge and Bradley (1976), Hovik and Hardenbrook (1989), Luckenbach (1982), Weinstein et al. (1987), and Service (1994c).

Food resources for desert tortoises are dependent on the availability and nutritional quality of annual and perennial vegetation, which is greatly influenced by climatic factors, such as the timing and amount of rainfall, temperatures, and wind (Beatley 1969, 1974, Congdon 1989, Karasov 1989, Polis 1991 in Avery 1998). In the Mojave Desert, these climatic factors are typically highly variable; this variability can limit the desert tortoise's food resources.

Desert tortoises will eat many species of plants. However, at any time, most of their diet often consists of a few species (Nagy and Medica 1986, Jennings 1993 in Avery 1998). Additionally, their preferences can change during the course of a season (Avery 1998) and over several seasons (Esque 1994 in Avery 1998). Possible reasons for desert tortoises to alter their preferences may include changes in nutrient concentrations in plant species, the availability of plants, and the nutrient requirements of individual animals (Avery 1998). In Avery's (1998) study in the Ivanpah Valley, desert tortoises consumed primarily green annual plants in spring; they ate cacti and herbaceous perennials once the winter annuals began to disappear. Medica et al. (1982 in Avery 1998) found that desert tortoises ate increased amounts of green perennial grass when winter annuals were sparse or unavailable; Avery (1998) found that desert tortoises rarely ate perennial grasses.

Desert tortoises can produce from one to three clutches of eggs per year. On rare occasions, clutches can contain up to 15 eggs; most clutches contain 3 to 7 eggs. Multi-decade studies of the Blanding's turtle (*Emydoidea blandingii*), which, like the desert tortoise, is long lived and matures late, indicate that approximately 70 percent of the young animals must survive each year until they reach adult size; after this time, annual survivorship exceeds 90 percent (Congdon et al. 1993). Research has indicated that 50 to 60 percent of young desert tortoises typically survive from year to year, even in the first and most vulnerable year of life. We do not have sufficient

information on the demography of the desert tortoise to determine whether this rate is sufficient to maintain viable populations; however, it does indicate that maintaining favorable habitat conditions for small desert tortoises is crucial for the continued viability of the species.

Desert tortoises typically hatch from late August through early October. At the time of hatching, the desert tortoise has a substantial yolk sac; the yolk can sustain them through the fall and winter months until forage is available in the late winter or early spring. However, neonates will eat if food is available to them at the time of hatching; when food is available, they can reduce their reliance on the yolk sac to conserve this source of nutrition. Neonate desert tortoises use abandoned rodent burrows for daily and winter shelter; these burrows are often shallowly excavated and run parallel to the surface of the ground.

Neonate desert tortoises emerge from their winter burrows as early as late January to take advantage of freshly germinating annual plants; if appropriate temperatures and rainfall are present, at least some plants will continue to germinate later in the spring. Freshly germinating plants and plant species that remain small throughout their phenological development are important to neonate desert tortoises because their size prohibits access to taller plants. As plants grow taller during the spring, some species become inaccessible to small desert tortoises.

Neonate and juvenile desert tortoises require approximately 12 to 16 percent protein content in their diet for proper growth. Desert tortoises, both juveniles and adults, seem to selectively forage for particular species of plants with favorable ratios of water, nitrogen (protein), and potassium. The potassium excretion potential model (Oftedal 2001) predicts that, at favorable ratios, the water and nitrogen allow desert tortoises to excrete high concentrations of potentially toxic potassium, which is abundant in many desert plants. Oftedal (2001) also reports that variation in rainfall and temperatures cause the potassium excretion potential index to change annually and during the course of a plant's growing season. Therefore, the changing nutritive quality of plants, combined with their increase in size, further limits the forage available to small desert tortoises to sustain their survival and growth.

In summary, the ecological requirements and behavior of neonate and juvenile desert tortoises are substantially different than those of subadults and adults. Smaller desert tortoises use abandoned rodent burrows, which are typically more fragile than the larger ones constructed by adults. They are active earlier in the season. Finally, small desert tortoises rely on smaller annual plants with greater protein content to be able to gain access to food and to grow, respectively.

Status of the Desert Tortoise

The Mojave population of the desert tortoise includes those animals living north and west of the Colorado River in the Mojave Desert of California, Nevada, Arizona, southwestern Utah, and in the Colorado Desert in California. On August 4, 1989, the Service published an emergency rule listing the Mojave population of the desert tortoise as endangered (54 *Federal Register* 32326).

In its final rule, dated April 2, 1990, the Service determined the Mojave population of the desert tortoise to be threatened (55 *Federal Register* 12178).

The desert tortoise was listed in response to loss and degradation of habitat caused by numerous human activities including urbanization, agricultural development, military training, recreational use, mining, and livestock grazing. The loss of individual desert tortoises to increased predation by common ravens, collection by humans for pets or consumption, collisions with vehicles on paved and unpaved roads, and mortality resulting from diseases also contributed to the Service's listing of this species.

The following paragraphs provide general information on the results of efforts to determine the status and trends of desert tortoise populations across a large portion of its range; we present information on the status of the desert tortoise within the action area in the Environmental Baseline section of this biological opinion. We have grouped these paragraphs by recovery unit and critical habitat unit; we will describe these units in more detail later in this biological opinion.

Before entering into a discussion of the status and trends of desert tortoise populations across its range, a brief discussion of the methods of estimating the numbers of desert tortoises would be useful. Three primary methods have been widely used: permanent study plots, triangular transects, and line distance sampling.

Generally, permanent study plots are defined areas that are visited at roughly 4-year intervals to determine the numbers of desert tortoises present. Desert tortoises found on these plots during the spring surveys were registered; that is, they were marked so they could be identified individually during subsequent surveys. Between 1971 and 1980, 27 plots were established in California to study the desert tortoise; 15 of these plots were used by the Bureau of Land Management (Bureau) to monitor desert tortoises on a long-term basis (Berry 1999). Range-wide, 49 plots have been used at one time or another to attempt to monitor desert tortoises (Tracy et al. 2004).

Triangular transects are used to detect sign (i.e., scat, burrows, footprints, etc.) of desert tortoises. The number of sign is then correlated with standard reference sites, such as permanent study plots, to allow the determination of density estimates.

Finally, line distance sampling involves walking transects while trying to detect live desert tortoises. Based on the distance of the desert tortoise from the centerline of the transect, the length of the transect, and a calculation of what percentage of the animals in the area were likely to have been above ground and visible to surveyors during the time the transect was walked, an estimation of the density can be made. The Service published the results of the first 5 years of line-distance sampling in 2006; the densities presented herein for line-distance sampling are the average of the densities for the years sampled between 2001 and 2005 (Service 2006)

Each of these methods has various strengths and weaknesses. The information we present on the density of desert tortoises across the range and in the action area is based on these methods of collecting data.

Note that, when reviewing the information presented in the following sections, determining the number of desert tortoises over large areas is extremely difficult. The report prepared by the Desert Tortoise Recovery Plan Assessment Committee (Tracy et al. 2004) acknowledges as much. Desert tortoises spend much of their lives underground or concealed under shrubs, are not very active in years of low rainfall, and are distributed over a wide area in several different types of habitat. Other factors, such as the inability to sample on private lands and rugged terrain, further complicate sampling efforts. Consequently, the topic of determining the best way to estimate the abundance of desert tortoises has generated many discussions over the years. As a result of this difficulty, we cannot provide concise estimations of the density of desert tortoises in each recovery unit or desert wildlife management area that have been made in a consistent manner.

Given the difficulty in determining the density of desert tortoises over large areas, the reader needs to understand fully that the differences in density estimates in the recovery plan and those derived from subsequent sampling efforts may not accurately reflect on-the-ground conditions.

Despite this statement, the reader should also be aware that the absence of live desert tortoises and the presence of carcasses over large areas of some desert wildlife management areas provide at least some evidence that desert tortoise populations seem to be in a downward trend in some regions.

Upper Virgin River Recovery Unit

The Upper Virgin River Recovery Unit is located in the northeastern most portion of the range of the desert tortoise; the Red Cliffs Reserve was established as a conservation area within this critical habitat unit. The recovery plan states that desert tortoises occur in densities of up to 250 adult animals per square mile within small areas of this recovery unit; overall, the area supports a mosaic of areas supporting high and low densities of desert tortoises (Service 1994c).

We have summarized the information in this paragraph from a report by the Utah Division of Wildlife Resources (McLuckie et al. 2003). The Utah Division of Wildlife Resources has intensively monitored desert tortoises, using a distance sampling technique, since 1998. Monitoring in 2003 indicated that the density of desert tortoises was approximately 44 per square mile throughout the reserve. This density represents a 41 percent decline since monitoring began in 1998. The report notes that the majority of desert tortoises that died within one year (n=64) were found in areas with relatively high densities; the remains showed no evidence of predation. Upper respiratory tract disease has been observed in this population; the region also experienced a drought from 1999 through 2002, with 2002 being the driest year. McLuckie et al. (2003) attribute the primary cause of the die-off to drought, but note that disease, habitat degradation,

direct mortality of animals, and predation by domestic dogs and common ravens were also factors in the decline. The average density of desert tortoises in this recovery unit, based on line-distance sampling conducted in 2001, 2003, and 2005 was 59.4 per square mile (Service 2006).

Northeastern Mojave Recovery Unit

The Northeastern Mojave Recovery Unit is located to the southwest of the Upper Virgin River Recovery Unit and extends through Nevada and into California in Ivanpah Valley. Several critical habitat units and four desert wildlife management areas are located within this recovery unit. Tracy et al. (2004) note that densities of adult desert tortoises for the overall region do not show a statistical trend over time.

The Beaver Dam Slope Desert Wildlife Management Area covers portions of Nevada, Utah, and Arizona; it is located to the southwest of the Red Cliffs Reserve. Based on various methods, the recovery plan estimates the density of desert tortoises in this desert wildlife management area as being from 5 to 56 animals per square mile (Service 1994c). McLuckie et al. (2001) estimated the density in 2001 to be approximately 7.9 reproductive desert tortoises per square mile, using a distance sampling method. However, they also note several problems with the sampling effort, including too few transects and transects placed in habitat types not normally inhabited by desert tortoises; we also note that, as described in the previous paragraph, the survey occurred during a year of lower-than-average rainfall, which would decrease activity levels of desert tortoises and make them more difficult to detect. The encounter rate during this survey was so low that the precision level of the results is low; other monitoring plots, from earlier years, showed higher density estimates.

The Gold Butte-Pakoon Desert Wildlife Management Area covers portions of Nevada and Arizona, generally south of the Beaver Dam Slope Desert Wildlife Management Area. The recovery plan states that densities of desert tortoises in this recovery unit vary from 5 to 56 animals per square mile (Service 1994c).

The Mormon Mesa Desert Wildlife Management Area is located entirely in Nevada, generally west and northwest of the Beaver Dam Slope and Gold Butte-Pakoon desert wildlife management areas, respectively. The recovery plan states that densities of desert tortoises in this recovery unit vary from 41 to 87 subadult and adult animals per square mile (Service 1994c).

The Coyote Springs Desert Wildlife Management Area is located entirely in Nevada, generally west of the Mormon Mesa Desert Wildlife Management Area and east of the Desert National Wildlife Refuge. The recovery plan states that densities of desert tortoises in this recovery unit vary from 0 to 90 adult animals per square mile (Service 1994c). Kernel analysis for the Coyote Springs Desert Wildlife Management Area showed areas where the distributions of carcasses and living desert tortoises do not overlap (Tracy et al. 2004); this scenario is indicative of a higher than average rate of mortality. (The Desert Tortoise Recovery Plan Assessment Committee used a kernel analysis to examine the distribution of live desert tortoises and carcasses over large areas of the range of the species (Tracy et al. 2004). The intent of this analysis is to determine

where large areas with numerous carcasses do not overlap large areas with live animals. Regions where the areas of carcasses do not overlap areas of live animals likely represent recent die-offs or declines in desert tortoise populations.) Because permanent study plots for this region were discontinued after 1996, recent declines in numbers would not be reflected in the kernel analysis if they had occurred.

The Ivanpah Desert Wildlife Management Area lies east of the Mojave National Preserve and covers approximately 36,795 acres. It is contiguous with National Park Service lands; note that the National Park Service did not designate desert wildlife management areas within the Mojave National Preserve because it considers that all of its lands are managed in a manner that is conducive to the recovery of the desert tortoise. The permanent study plot in the Ivanpah Valley is located within the Mojave National Preserve and provides information on the status of desert tortoises in this general region. Data on desert tortoises on this permanent study plot were collected in 1980, 1986, 1990, and 1994; the densities of desert tortoises of all sizes per square mile were 386, 393, 249, and 164, respectively (Berry 1996). (Numerous data sets are collected from the study plots and various statistical analyses conducted to provide information on various aspects of trends. We cannot, in this biological opinion, provide all of this information; therefore, we have selected the density of desert tortoises of all sizes per square mile to attempt to indicate trends.) The number of juvenile and immature desert tortoises on the study plot declined, although the number of adult animals remained fairly constant. The notes accompanying this report indicated that the "ill juvenile and dead adult male (desert) tortoises salvaged for necropsy contained contaminants;" it also cited predation by common ravens and the effects of cattle grazing as causative factors in the decline in the number of juvenile and immature desert tortoises on the study plot (Berry 1996). In 2002, workers found 55 desert tortoises on this plot; this number does not represent a density estimate (Berry 2005).

The average density of desert tortoises in this recovery unit was 5.1 per square mile (Service 2006). The line-distance sampling from which this density was derived was conducted from 2001 through 2005.

Eastern Mojave Recovery Unit

The Eastern Mojave Recovery Unit extends from west of Clark Mountain, south through the Mojave National Preserve, and east into southern Nevada. Within this recovery unit, the Bureau designated the Shadow Valley and Piute-Fenner desert wildlife management areas within California and the Piute-El Dorado Desert Wildlife Management Area in Nevada.

The Shadow Valley Desert Wildlife Management Area, which occupies approximately 101,355 acres, lies north of Interstate 15 and west of the Clark Mountains. The Mojave National Preserve is located to the south of the interstate. Data on desert tortoises on a permanent study plot in this area were collected in 1988 and 1992; the densities of desert tortoises of all sizes per square mile were 50 and 58, respectively (Berry 1996). Although these data seem to indicate a slight increase in the number of desert tortoises, in 2002, workers found five desert tortoises on this

plot; this number does not represent a density estimate (Berry 2005). Some signs of shell disease have been observed in the population in recent years (Bureau 2002).

The Bureau's Piute-Fenner Desert Wildlife Management Area lies to the east of the southeast portion of the Mojave National Preserve and is contiguous with National Park Service lands. It occupies approximately 173,850 acres. The Goffs permanent study plot, which is located within the Mojave National Preserve, provides information on the status of desert tortoises in this general region. Data on desert tortoises on this permanent study plot were collected in 1980, 1990, and 1994; Berry (1996) estimated the densities of desert tortoises of all sizes at approximately 440, 362, and 447 individuals per square mile, respectively. As Berry (1996) noted, these data seem to indicate that this area supported "one of the more stable, high density populations" of desert tortoises within the United States. Berry (1996) also noted that "a high proportion of the animals (had) shell lesions." In 2000, only 30 live desert tortoises were found; Berry (2000) estimated the density of desert tortoises at approximately 88 animals per square mile. The shell and skeletal remains of approximately 393 desert tortoises were collected; most of these animals died between 1994 and 2000. Most of the desert tortoises exhibited signs of shell lesions; three salvaged desert tortoises showed abnormalities in the liver and other organs and signs of shell lesions. None of the three salvaged desert tortoises tested positive for upper respiratory tract disease.

The Piute-Eldorado Desert Wildlife Management Area is located entirely in southern Nevada and is contiguous with California's Piute-Fenner Desert Wildlife Management Area. Based on various methods, the recovery plan estimates the density of desert tortoises in this desert wildlife management area as being from 40 to 90 adults per square mile (Service 1994c). A kernal analysis of the results of distance sampling data from 2001 depicted large areas where only carcasses were detected (Tracy et al. 2004). Only six live desert tortoises were encountered in approximately 103 miles of transects during this sampling effort; this encounter rate is very low.

The average density of desert tortoises in this recovery unit was 54.3 per square mile (Service 2006). The line-distance sampling from which this density was derived was conducted from 2001 through 2005.

Northern Colorado Recovery Unit

The Northern Colorado Recovery Unit extends from Interstate 40 south, almost to Interstate 10 and from the eastern portions of Joshua Tree National Park east to the Colorado River; it is located immediately south of the Eastern Mojave Recovery Unit. The 874,843-acre Chemehuevi Desert Wildlife Management Area, which is managed by the Bureau, is the sole conservation area for the desert tortoise in this recovery unit.

Two permanent study plots are located within this desert wildlife management area. At the Chemehuevi Valley and Wash plot, 257 and 235 desert tortoises were registered in 1988 and 1992, respectively (Berry 1999). During the 1999 spring survey, only 38 live desert tortoises were found. The shell and skeletal remains of at least 327 desert tortoises were collected; most,

if not all, of these animals died between 1992 and 1999. The frequency of shell lesions and nutritional deficiencies appeared to be increasing and may be related to the mortalities.

The Upper Ward Valley permanent study plot was surveyed in 1980, 1987, 1991, and 1995; Berry (1996) estimated the densities of desert tortoises of all sizes at approximately 437, 199, 273, and 447 individuals per square mile, respectively. In 2002, workers found 17 desert tortoises on this plot; this number does not represent a density estimate (Berry 2005).

The average density of desert tortoises in this recovery unit was 19.0 per square mile (Service 2006). The line-distance sampling from which this density was derived was conducted in 2001, 2003, 2004, and 2005.

Eastern Colorado Recovery Unit

The Eastern Colorado Recovery Unit, which is located immediately south of the Northern Colorado Recovery Unit, extends from just north of Interstate 10 south to the Mexico border near Yuma, Arizona; the Salton Sink and Imperial Valley form the western edge of this recovery unit, which extends east to the Colorado River. The Chuckwalla Desert Wildlife Management Area, which covers 818,685 acres, is the sole conservation area for the desert tortoise in this recovery unit. The Marine Corps (Chocolate Mountains Aerial Gunnery Range), Bureau, and National Park Service (Joshua Tree National Park) manage the Federal lands in this recovery unit and desert wildlife management area. Two permanent study plots are located within this desert wildlife management area.

At the Chuckwalla Bench plot, Berry (1996) calculated approximate densities of 578, 396, 167, 160, and 182 desert tortoises per square mile in 1979, 1982, 1988, 1990, and 1992, respectively. In 1997, workers found 52 desert tortoises on this plot; this number does not represent a density estimate (Berry 2005). At the Chuckwalla Valley plot, Berry (1996) calculated approximate densities of 163, 181, and 73 desert tortoises per square mile in 1980, 1987, and 1991, respectively. Tracy et al. (2004) concluded that these data show a statistically significant decline in the number of adult desert tortoises over time; they further postulate that the decline on the Chuckwalla Bench plot seemed to be responsible for the overall significant decline within the recovery unit.

The average density of desert tortoises in this recovery unit was 18.1 per square mile (Service 2006). The line-distance sampling from which this density was derived was conducted from 2001 through 2005.

Western Mojave Recovery Unit

Although desert tortoises were historically widespread in the western Mojave Desert, their distribution within this region was not uniform. For example, desert tortoises likely occurred at low densities in the juniper woodlands of the western Antelope Valley and in the sandier habitats in the Mojave River valley. They were also likely largely absent from the higher elevations of

the Ord and Newberry mountains and from playas and the areas immediately surrounding these dry lakes. Several large areas of land that are not managed by the Bureau lie within the Western Mojave Recovery Unit; because of their size, these areas are not affected by the Bureau's management of public lands and are therefore not part of the action area for this consultation. These areas lie primarily on military bases, within Joshua Tree National Park, and in areas of private land.

Desert tortoises occur over large areas of Fort Irwin, which is managed by the Department of the Army (Army). At Fort Irwin, the Army conducts realistic, large-scale exercises with large numbers of wheeled and tracked vehicles. In areas where training has occurred for many decades, desert tortoises persist in relatively low numbers primarily on the steep, rugged slopes of the mountain ranges that occur throughout Fort Irwin. Through Public Law 107-107, approximately 118,600 acres were added to Fort Irwin along its southwestern and eastern boundaries in 2002. Approximately 97,860 acres of the Superior-Cronese Critical Habitat Unit lie along the original southern boundary of Fort Irwin and in the parcel to the southwest that was added in 2002 (Charis Professional Services Corporation 2003, Army 2004). Currently, the Army may conduct some low intensity training in these areas on occasion and some preparations for the onset of force-on-force training should begin soon. To date, these parcels have not been used for force-on-force training; within the next few years, the Army will begin to use a large portion of these lands for maneuvers with numerous wheeled and tracked vehicles. In our biological opinion regarding the effects of the use of these lands for training on the desert tortoise (Service 2004), we noted that approximately 1,299 to 1,349 adult desert tortoises may occur within the action area for that consultation. The Army established several conservation areas, totaling approximately 16,900 acres, just inside the boundaries of Fort Irwin where maneuvers would not occur. The Army calculated that approximately 152 desert tortoises may reside within these areas; these animals are unlikely to be affected by use of the new training lands. Additionally, because of other restrictions that the Army will follow during training, approximately 5,500 acres of critical habitat of the desert tortoise within the additional training lands will not be used for force-on-force training. These lands lie primarily on and around dry lakes, which generally do not support large numbers of desert tortoises, because the lake beds themselves do not provide suitable habitat and the areas immediately surrounding the playas usually support substrates composed of clays and silt that are not suitable for burrowing. Finally, in the Eastgate portion of Fort Irwin, approximately 288 desert tortoises may be exposed to additional training; however, most of these animals are located in an area that is unlikely to receive much used by vehicles and are thus unlikely to be affected. The Army and Service have agreed that desert tortoises within new training areas that are likely to be killed by maneuvers will be translocated to newly acquired lands to the south of Fort Irwin; a plan for this translocation is currently under development.

The Navy has designated approximately 200,000 acres of the South Range at the Naval Air Weapons Station, China Lake as a management area for the desert tortoise (Service 1995). Through a consultation with the Service (1992a), the Navy agreed to try to direct most ground-disturbing activities outside of this area, to use previously disturbed areas for these activities when possible, and to implement measures to reduce the effects of any action on desert tortoises.

This area also encompasses the Superior Valley Tactical Bombing Range located in the southernmost portion of the Mojave B South land management unit of the Naval Air Weapons Station; it continues to be used as an active bombing range for military test and training operations by the Navy and Department of Defense. In the 3 years for which we had annual reports available, activities conducted by the Navy did not kill or injure any desert tortoises (Navy 1995, 2001, 2002). In general, desert tortoises occur in low densities on the North Range of the Naval Air Weapons Station; Kiva Biological Consulting and McClenahan and Hopkins Associates (in Service 1992a) reported that approximately 136 square miles of the North Range supported densities of 20 or fewer desert tortoises per square mile. The South Range supported densities of 20 or fewer desert tortoises per square mile over an area of approximately 189 square miles and densities of greater than 20 per square mile on approximately 30 square miles. The higher elevations and latitude in this area may be responsible for these generally low densities (Weinstein 1989 in Bureau et al. 2005).

The Indian Wells Valley, which is located to the southwest of the Naval Air Weapons Station, likely supported desert tortoises at higher densities in the past. Urban, suburban, and agricultural development in this area is the likely cause of the lower densities that are currently found in this area.

Edwards Air Force Base is used primarily to test aircraft and weapons systems used by the Department of Defense. Desert tortoises occur over approximately 220,800 acres of the installation. Approximately 80,640 acres of the base have been developed for military uses or are naturally unsuitable for use by desert tortoises, such as Rogers and Rosamond dry lakes. Based on surveys conducted between 1991 and 1994, approximately 160,640 acres of the base supported 20 or fewer desert tortoises per square mile. Approximately 55,040 acres supported densities between 21 and 50 desert tortoises per square mile; from 51 to 69 desert tortoises per square mile occurred on several smaller areas that totaled 5,120 acres (U.S. Air Force 2004). We expect that current densities are somewhat lower, given the regional declines in desert tortoise numbers elsewhere in the Western Mojave Recovery Unit.

Desert tortoises may have been more common in the past the area west of Highway 14 between the town of Mojave and Walker Pass; high levels of off-road vehicle use and extensive livestock grazing are potential causes for the current scarcity of desert tortoises in this area. Four townships of private land east of the city of California City and south of the Rand Mountains supported large numbers of desert tortoises as late as the 1970s; high levels of off-road vehicle use, extensive grazing of sheep, scattered development, and possibly poaching have greatly reduced the density of desert tortoises in this area.

The direct and indirect effects of urban and suburban development extending from Lancaster in the west to Lucerne Valley in the east has largely eliminated desert tortoises from this area. A few desert tortoises remain on the northern slopes of the San Bernardino Mountains, south of Lucerne Valley; however, they seem to be largely absent from the portion of this area in Los Angeles County (Bureau et al. 2005).

The northern portion of Joshua Tree National Park is within the planning area for the West Mojave Plan. Given the general patterns of visitor use at Joshua Tree National Park, we expect that this area receives little use.

Private lands between the northern boundary of Joshua Tree National Park and the southern boundary of the Marine Corps Air Ground Combat Center continue to support desert tortoises; the primary threat to desert tortoises in this area is urbanization.

Desert tortoises occur within the Marine Corps Air Ground Combat Center in densities of greater than 50 per square mile in limited areas; most of the installation, however, supports from 0 to 5 animals per square mile (Jones and Stokes Associates 1998 in Natural Resources and Environmental Affairs Division 2001). The Marine Corps' integrated natural resource management plan also notes that the number of desert tortoises may have declined in the more heavily disturbed areas of the Marine Corps Air Ground Combat Center and that vehicles, common ravens, and dogs are responsible for mortalities. In general, the Marine Corps Air Ground Combat Center supports a wide variety of training exercises that include the use of tracked and wheeled vehicles and live fire.

The average density of desert tortoises in this recovery unit was 16.4 per square mile (Service 2006). The line-distance sampling from which this density was derived was conducted from 2001 through 2005.

Recovery Plan for the Desert Tortoise

The recovery plan for the desert tortoise is the basis and key strategy for recovery and delisting of the desert tortoise. The recovery plan divides the range of the desert tortoise into 6 distinct population segments or recovery units and recommends the establishment of 14 desert wildlife management areas throughout the recovery units. Within each desert wildlife management area, the recovery plan recommends implementation of reserve level protection of desert tortoise populations and habitat, while maintaining and protecting other sensitive species and ecosystem functions. The recovery plan also recommends that desert wildlife management areas be designed to follow the accepted concepts of reserve design and be managed to restrict human activities that negatively affect desert tortoises (Service 1994c). The delisting criteria established by the recovery plan are:

1. The population within a recovery unit must exhibit a statistically significant upward trend or remain stationary for at least 25 years;

2. Enough habitat must be protected within a recovery unit or the habitat and desert tortoises must be managed intensively enough to ensure long-term viability;

3. Populations of desert tortoises within each recovery unit must be managed so discrete population growth rates (lambdas) are maintained at or above 1.0;

4. Regulatory mechanisms or land management commitments that provide for long-term protection of desert tortoises and their habitat must be implemented; and

5. The population of the recovery unit is unlikely to need protection under the Endangered Species Act in the foreseeable future.

The recovery plan based its descriptions of the six recovery units on differences in genetics, morphology, behavior, ecology, and habitat use over the range of the Mojave population of the desert tortoise. The recovery plan contains generalized descriptions of the variations in habitat parameters of the recovery units and the behavior and ecology of the desert tortoises that reside in these areas (pages 20 to 22 in Service 1994c). The recovery plan (pages 24 to 26 from Service 1994c) describes the characteristics of desert tortoises and variances in their habitat, foods, burrow sites, and phenotype across the range of the listed taxon. Consequently, to capture the full range of phenotypes, use of habitat, and range of behavior of the desert tortoise as a species, conservation of the species across its entire range is essential.

Assessment and Revision of the Recovery Plan

In 2003, the Service appointed a group of researchers to conduct a scientific assessment of the recovery plan for the desert tortoise, which was completed in 1994. This group, called the Desert Tortoise Recovery Plan Assessment Committee, completed its assessment in 2004. The group found that the recovery plan was "fundamentally sound, but some modifications for contemporary management will likely make recovery more successful" (Tracy et al. 2004). The group also found that analyses showed desert tortoise populations were declining in some portions of the range, assessing the density of desert tortoises is difficult, and "the original paradigm of desert tortoises being recovered in large populations relieved of intense threats may be flawed..."(Tracy et al. 2004). Finally, the group reviewed the distinct population segments (or recovery units) described in the recovery plan and concluded they should be modified; briefly, the Desert Tortoise Recovery Plan Assessment Committee recommends leaving the Western Mojave and Upper Virgin River units intact and recombining the remaining four into three distinct population segments.

The Service is currently in the process of revising the recovery plan for the desert tortoise.

Relationship of Recovery Units, Distinct Population Segments, Desert Wildlife Management Areas, and Critical Habitat Units

The recovery plan (Service 1994c) recognized six recovery units or evolutionarily significant units across the range of the listed taxon, based on differences in genetics, morphology, behavior, ecology, and habitat use of the desert tortoises found in these areas. The boundaries between these areas are vaguely defined. In some cases, such as where the Western Mojave Recovery Unit borders the Eastern Mojave Recovery Unit, a long, low-lying, arid valley provides a fairly substantial separation of recovery units. In other areas, such as where the Eastern Mojave Recovery Unit borders the Northern Colorado Recovery Unit, little natural separation exists.

Because of the vague boundaries, the acreage of these areas has not been quantified. Over the years, workers have commonly referred to the areas as "recovery units;" the term "distinct population segment" has not been in common use. As mentioned previously in the Assessment of the Recovery Plan section of this biological opinion, the Desert Tortoise Recovery Plan Assessment Committee suggests that five recovery units (or distinct population segments) would more appropriately represent variation across the range of the desert tortoise rather than the six described in the recovery plan; because this concept is not yet universally accepted, we will continue to refer to the recovery units described in the recovery plan in this biological opinion.

The recovery plan recommended that land management agencies establish one or more desert wildlife management areas within each recovery unit. As mentioned previously in the Recovery Plan for the Desert Tortoise section of this biological opinion, the recovery plan recommended that these areas receive reserve-level management to remove or mitigate the effects of the human activities responsible for declines in the number of desert tortoises. As was the case for the recovery units, the recovery plan did not determine precise boundaries for the desert wildlife management areas; the recovery team intended for land management agencies to establish these boundaries, based on the site-specific needs of the desert tortoise. At this time, desert wildlife management areas have been established throughout the range of the desert tortoise, except in the Western Mojave Recovery Unit.

Based on the recommendations contained in the draft recovery plan for the desert tortoise (59 *Federal Register* 5820), the Service designated critical habitat units throughout the range of the desert tortoise. The 14 critical habitat units have defined boundaries and cover specific areas throughout the 6 recovery units.

The Bureau used the boundaries of the critical habitat units and other considerations, such as conflicts in management objectives and more current information, to propose and designate desert wildlife management areas through its land use planning processes. In California, the Bureau also classified these desert wildlife management areas as areas of critical environmental concern, which, as we mentioned in the Description of the Proposed Action section of this biological opinion, allows the Bureau to establish management goals for specific resources in defined areas. Through the land use planning process, the Bureau established firm boundaries for the desert wildlife management areas.

Finally, we note that the Department of Defense installations and National Park Service units in the California desert did not establish desert wildlife management areas on their lands. Where the military mission is compatible with management of desert tortoises and their habitat, the Department of Defense has worked with the Service to conserve desert tortoises and their habitat. Examples of such overlap include the bombing ranges on the Navy's Mojave B and the Chocolate Mountains Aerial Gunnery Ranges; although the target areas are heavily disturbed, most of the surrounding land remains undisturbed. Additionally, the Army has established several areas along the boundaries of Fort Irwin where training with vehicles is prohibited; desert tortoises persist in these areas, which are contiguous with lands off-base. We discussed the situation at Joshua Tree National Park in the Status of Critical Habitat section of this biological

opinion. The National Park Service did not establish desert wildlife management areas within the Mojave National Preserve, because the entire preserve is managed at a level that is generally consistent with the spirit and intent of the recovery plan for the desert tortoise.
The following table depicts the relationship among recovery units, desert wildlife management areas, and critical habitat units through the range of the desert tortoise.

Critical Habitat Unit	Desert Wildlife Management Area	Recovery Unit	State	Size of Critical Habitat Unit (acres)
Chemehuevi	Chemehuevi	Northern Colorado	CA	937,400
Chuckwalla	Chuckwalla	Eastern Colorado	CA	1,020,600
Fremont-Kramer	Fremont-Kramer	Western Mojave	CA	518,000
Ivanpah Valley	Ivanpah Valley	Eastern Mojave	CA	632,400
Pinto Mountain	Joshua Tree	Western Mojave/ Eastern Colorado	CA	171,700
Ord-Rodman	Ord-Rodman	Western Mojave	CA	253,200
Piute-Eldorado- CA Piute-Eldorado- NV	Fenner Piute-Eldorado	Eastern Mojave Northeastern Mojave/ Eastern Mojave	CA NV	453,800 516,800
Superior-Cronese	Superior-Cronese Lakes	Western Mojave	CA	766,900
Beaver Dam: NV UT AZ	 Beaver Dam Beaver Dam Beaver Dam	Northeastern Mojave (all)	 NV UT AZ	 87,400 74,500 42,700
Gold Butte-Pakoon NV AZ	 Gold Butte-Pakoon Gold Butte-Pakoon	Northeastern Mojave (all)	 NV AZ	 192,300 296,000
Mormon Mesa	Mormon Mesa Coyote Spring	Northeastern Mojave	NV	427,900
Upper Virgin River	Upper Virgin River	Upper Virgin River	UT	54,600

Recent Fires

Since December 2004, numerous wildfires have occurred in desert tortoise habitat across its range. Although we know that some desert tortoises were killed by the wildfires, mortality estimates are not available at this time. We estimate that approximately 500,000 acres of potential desert tortoise habitat burned in the Northeastern Mojave Recovery unit in 2005. This number includes areas of critical habitat that burned, which are noted in the following table. All data are from Clayton (2005).

Recovery Unit	Critical Habitat Unit	Acres Burned
Upper Virgin River	Upper Virgin River	10,446
Northeastern Mojave	Beaver Dam Slope	46,757
Northeastern Mojave	Gold Butte-Pakoon	62,466
Northeastern Mojave	Mormon Mesa	15,559
Eastern Mojave	Piute-Eldorado	154
Eastern Mojave	Ivanpah	1,065
Total		136,447

The 136,447 acres of critical habitat that burned represent approximately 2.1 percent of the total amount of critical habitat that was designated for the desert tortoise.

ENVIRONMENTAL BASELINE

Action Area

The implementing regulations for section 7(a)(2) of the Act define the action area to be "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." We consider the action area to include the proposed power plant site; the proposed western and southern construction staging areas adjacent to the plant site; the electric, gas, and water transmission lines described in this biological opinion; and the proposed access roads to the site along the existing Adelanto, Colusa, and Helendale roads. The power plant would occupy 338 acres, the 2 staging areas would cover 50 acres, and installation of the utilities would occur in an area of 107 acres. Dust, noise, light, and emissions from construction and operation of the plant and its ancillary facilities may extend beyond the physical footprint of the action area; however, we have no means by which to delineate the area within which these effects may occur.

The City of Victorville has proposed to translocate any desert tortoises found within the site of the proposed power plant to a location approved by both the Service and the California Department of Fish and Game. If desert tortoises are found onsite during construction and are moved to an off-site area, the area to which they would be moved would also be considered part of the action area. As this area has not yet been specified or approved, we cannot provide any information on the baseline conditions in such a translocation area. The Service will allow the translocation of desert tortoises only to areas that meet the minimum criteria to be provided in a translocation plan subject to agency approval. Such criteria include but are not limited to appropriate habitat conditions and available protected space, such as areas removed from immediate, obvious threats.

Habitat Characteristics of the Action Area

The following description of the action area is summarized from the biological assessment (AMEC Earth and Environmental 2007). Mojave creosote bush scrub covers most of the power plant site and staging areas; it is also the most common community along the transmission line to

the south to Interstate 15. South of Interstate 15, Mojave juniper woodland and scrub habitat comprises most of the remaining native habitat. Approximately 57 acres within the power plant site and transmission line rights-of-way are currently disturbed or developed.

Status of the Desert Tortoise in the Action Area

The following description of the action area is summarized from the biological assessment (AMEC Earth and Environmental 2007). Two desert tortoises were detected within the area of the proposed power plant. Four desert tortoises were observed adjacent to the proposed site; any of these animals could potentially move to within the work area. Additionally, the surveys conducted outside the footprint of the power plant did not cover the entire site; consequently, other desert tortoises may be present in the vicinity of the project site. One hatchling and 4 adult carcasses, 39 burrows, and 29 scat were recorded within the project area and the area adjacent to the site. The desert tortoises and their sign were most abundant in the northern and eastern portions of the project site and to the east of the project footprint.

EFFECTS OF THE ACTION

Three primary aspects of the proposed action may affect desert tortoises within the action area. These aspects are the capture and removal of any desert tortoises that may be in the action area, the construction of the power plant and its ancillary facilities, and operation of the power plant and its ancillary facilities. We will discuss these aspects in the following sections.

Capture and Removal of Desert Tortoises

The City of Victorville has proposed to install fencing to prevent desert tortoises from entering the site of the proposed power plant. After the fence is installed, qualified biologists will survey the site of the proposed facility to find and remove any desert tortoises. The City of Victorville would not begin ground-disturbing activities until this survey is completed.

At this time, we do not have substantial details related to the translocation of desert tortoises from the project site. The Environmental Protection Agency, City of Victorville, California Department of Fish and Game, and Service agreed to postpone a specific analysis of such a plan until the City of Victorville could provide additional details, such as a potential translocation site. However, given the responses of desert tortoises to translocation at the Long-term Study Site in Nevada and at the Hyundai site in California, we anticipate that successful translocation of the desert tortoises from the action area is highly likely. In this section, we will consider the potential adverse effects of translocating desert tortoises from the action area.

Some potential exists that capturing desert tortoises may cause elevated levels of stress that may render these animals more susceptible to disease or predation. Because the City of Victorville has proposed to use only experienced biologists approved by the Service, the potential that the stress levels of the desert tortoises would be substantially elevated will likely be minimized.

Desert tortoises that are moved from their home ranges occasionally try to return to the site from which they were removed. Consequently, translocated animals may attempt to re-enter their former territories and thus spend relatively greater amounts of time above ground or to attempt to cross roads or other hazardous areas. This change in behavior patterns may expose them to elevated risks of predation and exposure to temperature extremes that they would otherwise avoid. In such cases, desert tortoises may be killed or injured.

The translocation of any desert tortoises from the project area into off-site habitat has the potential to disrupt the behavior and social structure of and to introduce disease to animals that reside at the receiving site. Such disruption may impair their breeding, feeding, and sheltering by elevating the frequency and intensity of aggressive interactions between individuals; the introduction of disease would likely be detrimental to naïve desert tortoises.

The Service will ensure that desert tortoises are translocated using the best available information and according to criteria established in the translocation plan. For these reasons, we anticipate that, overall, the effects of translocation on both resident and translocated desert tortoises are likely to be minor. We have reached this conclusion because surveys have indicated that few desert tortoises are present and thus likely to be translocated; consequently, few resident animals are likely to be affected. Because the desert tortoises that would be translocated currently reside on private land that is not managed for its wildlife values, the potential also exists that the translocation may improve the conservation status of the desert tortoise by placing these animals in a location where they are likely to more be protected in the long term from human activities.

Desert tortoises may be encountered during construction of the utility lines in the northern portion of the utility lines. Given the temporary and linear nature of the disturbance in this area, the potential exists that these animals may be moved from harm's way. Another technique occasionally used to protect desert tortoises under these circumstances is to use temporary fencing to restrict them to the immediate vicinity of their burrows and away from human activity; the fences are then removed after work has been completed. Desert tortoises may also be encountered during maintenance along these utilities, although the chance that an encounter may occur during any given activity would likely be low, given the smaller scale of this work.

Short-distance movements of these animals from harm's way are unlikely to cause undue stress, disrupt the social structure of resident animals, and introduce disease. We have reached this conclusion because such movements would likely be within the home range of any desert tortoises that are moved. Additionally, such short-distance movements would be unlikely to place desert tortoises at risk of contacting new animals. They likely would have had past opportunity to contact nearby animals and would thereby be operating within their usual social structure; the transmission of disease would also be less likely under this scenario.

The potential exists that some desert tortoises living under particularly hazardous circumstances may be found along the utility lines. Such animals may include those living near a busy road or adjacent to an area used for unauthorized off-road vehicle play. Moving these desert tortoises to the translocation site may be protective of the individuals and further improve the conservation

status of the species. Overall, based on the results of the surveys and the nature of the present uses along the utility lines, particularly in the more southerly portions of the rights-of-way, we do not expect many desert tortoises to occur or be found.

Depending on various circumstances, such as the number of desert tortoises found during construction, the health status of the individuals, and the need for animals to be used in research on the ecology of the species or in captive breeding facilities, we may determine that removing these individuals from the wild would be their highest and best use. The loss of this small number of desert tortoises from the wild would not affect, in an appreciable manner, the reproduction, numbers, or distribution of the desert tortoise; these individuals have the potential to contribute to the recovery of the species by contributing information or offspring that could eventually released to the wild.

Two desert tortoises were detected during surveys within the area of the proposed power plant; four animals were found adjacent to the site. We expect that more desert tortoises may be found during clearance surveys because these surveys are designed to detect every animal, whereas the initial surveys were intended to provide more general information. Regardless of this fact, we conclude, based on the information presented in the biological assessment, that site and the surrounding area support relatively few desert tortoises. We estimate that approximately ten individuals may occur in the action area; this number may change by some amount as a result of the movement of desert tortoises, reproduction, and predation.

Construction of the Power Plant and its Ancillary Facilities

Given the size of the proposed power plant, some potential exists that not all desert tortoises would be found during clearance surveys prior to the onset of construction. Desert tortoises may also re-enter work areas after surveys have been completed; this situation is more likely to occur along the utility lines because of their linear nature and because they would not be fenced. In such cases, desert tortoises may be killed or injured by equipment or other aspect of construction. Smaller desert tortoises, because they are more difficult to detect during surveys, are more likely to be affected in this manner.

Because the City of Victorville will only use qualified biologists to conduct the pre-construction surveys, we expect that few desert tortoises are likely to be killed or injured during construction. The training program that will be provided to all workers may also assist in reducing mortality of desert tortoises; if workers are aware of the potential presence of desert tortoises, they may be more likely to see them during work activities and contact the project biologists to remove the animals. Given that few desert tortoises were found on the site during surveys and that the City of Victorville proposes to remove them prior to the onset of work, we anticipate that few, if any, individuals are likely to be killed or injured during construction.

Construction of the power plant would cause the permanent loss of approximately 285 acres of desert tortoise habitat; developed areas and non-native grassland cover the remaining 53 acres of the 338-acre site. An additional 50 acres, in 2 parcels, would be subjected to temporary

disturbance during construction; although the City of Victorville has proposed to revegetate these areas, we expect that their restoration to pre-project conditions would require decades, given the nature of the desert's climate, substrate, and plant species. The loss of this area will not substantially reduce the habitat that is available within the region for desert tortoises to breed, feed, seek shelter, or conduct other necessary ecological functions. The proposed facility is surrounded by additional habitat that provides these functions to desert tortoises. In addition, the proposed power plant is located at the edge of an urbanizing area that the Service has not identified as being important to the conservation of the desert tortoise.

The Environmental Protection Agency's and City of Victorville's commitment to prevent common ravens from accessing construction-related trash should reduce the likelihood that these birds will gain substantial subsidies during construction. Although common ravens may be attracted to the heightened levels of human activity during construction to some degree, we expect this slight local increase is likely to be minor and temporary because of the lack of substantial subsidies.

The biological assessment notes that noise, light, and dust from construction activities may affect wildlife that occurs near the facility. Excessive noise could damage the ears of desert tortoises; at a lower level, it may mask sounds that may be important for intra-specific communication or that may allow desert tortoises to detect predators. The Environmental Protection Agency and City of Victorville did not provide any specific information on the levels and duration of noise that would be generated by construction; however, we anticipate that, because sound dissipates fairly quickly with distance, noise generated during construction is unlikely to damage desert tortoises. Increased lighting could potentially influence the activity patterns at night; we are unaware of any studies that evaluated this potential effect. Dust deposited on plants can impede photosynthesis and thus alter their growth patterns and reproductive output; such an effect would likely be most prominent on perennial species, which do not contribute to the diet of desert tortoises in a substantial manner. The effects of noise and dust would be temporary and localized in nature, occurring primarily during construction; consequently, they would not cause long-term or widespread effects on desert tortoises. Although we are unaware of how light may affect desert tortoises, we suspect that its effects are likely to be minimal, if any, because desert tortoises spend most nights in burrows, which would further reduce their exposure.

The vast majority of work would occur within an area that has been fenced to preclude entry by desert tortoises; as we have stated, this single measure should greatly decrease the likelihood that desert tortoises will be killed or injured during construction. However, several utility lines would be constructed outside of the fenced area. Workers may encounter desert tortoises during these activities. However, because these workers will abide by the same best management practices that the City of Victorville will be implementing throughout the rest of the action area and all construction in unfenced areas will be monitored by biological monitors, we expect the installation of the utilities to kill or injure few, if any, desert tortoises; additionally, desert tortoises are unlikely to be present in the more southerly portions of the utility lines where the lines begin to enter more urbanized area or leave suitable appropriate habitat for the species. Approximately 107 acres of desert tortoise habitat would be disturbed by this work, primarily in

a linear manner; this disturbance will not substantially affect the ability of the desert tortoise to breed, feed, or shelter in this area.

The City of Victorville's proposal to install temporary fencing along the Adelanto, Colusa and Helendale roads will substantially reduce the potential for desert tortoises to be killed or injured as a result of being struck by vehicles during construction. Because the fencing will have some gaps in it that cannot be fenced because of crossroads, desert tortoises could enter the access road; these animals would be at risk of being stuck by vehicles or dying of exposure because the fence, having been constructed on the road shoulder, outside of habitat, would prevent them from finding shelter, except at the ends of the fence. Given the generally low density of desert tortoises in the action area, relatively few animals may be at risk.

Construction and other vehicles traveling along the utility lines may strike desert tortoises attempting to cross these roads. Given the generally low density of desert tortoises in the action area, relatively few animals may be at risk. Conversely, because of the speed at which vehicles travel along maintained roads, this aspect of the process action likely poses the greatest risk to desert tortoises. We have no information regarding the current level of vehicle use of these roads.

Construction activities have the potential to introduce or spread non-native plant species. As noted in the biological assessment (AMEC Earth and Environmental 2007), the action area already supports non-native species to some degree. These species, at least in some cases, provide less nutritious forage for desert tortoises than native plant species; if desert tortoises cannot obtain adequate nutrition, they may be more susceptible to disease and predation, may not reproduce at optimal rates, and could ultimately starve. The area that would be temporarily disturbed may be highly susceptible to invasion by nonnative species; if it is heavily invaded, its future value to desert tortoises would likely be compromised. More importantly, a high concentration of non-native plants in the 50-acre construction area could serve as a substantial source of seeds for non-native plants to invade surrounding areas. The proposed revegetation of the areas of temporary disturbance may assist in controlling non-native species in the action area; we cannot predict, with any degree of certainty, how effective such measures may be, given the many variables involved (e.g., weather patterns that favor native species over non-natives or vice versa, the ability of restored native species to become re-established quickly).

The education program that the City of Victorville will provide should prevent workers from killing, injuring, or otherwise affecting desert tortoises as a result of being uninformed.

Operation of the Facility and Its Ancillary Features

Fencing to preclude entry by desert tortoises will surround the completed facility. We expect that few, if any, desert tortoises would be able to enter the facility once it is fenced. Consequently, we do not expect desert tortoises to be killed or injured by the power plant. Some potential exists that individuals may be able to enter the site periodically through gates or breaches in the fence; these individuals would be at risk of being killed or injured by vehicles.

We expect that few individuals would be killed or injured as a result of entering the power plant site during its operational phase.

The presence of the power plant would fragment habitat of the desert tortoise. Over the long term, we do not consider this effect to be substantial because few desert tortoises currently occur in the area; additionally, desert tortoises are currently largely precluded from long-range movements by Highway 395 to the west of the action area and the Mojave River to its east. Additionally, genetic exchange, if it occurs in this local area, would continue to be possible, over the long term, around the edges of the facility.

Desert tortoises could be killed or injured during maintenance of the utility lines. We expect that few desert tortoises are likely to be killed or injured during these activities, primarily because few individuals likely remain in the areas that the utility lines cross. As we have discussed previously in the biological opinion, desert tortoises are present only along the northern portions of the lines. We also expect, over time, as the area continues to experience more human use, the likelihood of individuals being killed or injured as a result of maintenance activities will decrease as the number of desert tortoises in the region continues to decrease.

Vehicles carrying workers and equipment to the power plant during its operational phase may strike desert tortoises on the access roads. We expect, over time, this threat to desert tortoises will decrease as the area continues to urbanize and number of desert tortoise in the region decreases. As we mentioned in the discussion of the effects of vehicles during construction, we have no information on the level of vehicle use that is likely along the access roads.

The power plant would emit approximately 111.9 tons of nitrogen per year as a waste product during its operation; additional nitrogen would also be produced during construction (Inland Energy 2007). This nitrogen would be carried by wind to the surrounding desert, where it could add, to some degree, nutrients to the substrate. Desert substrates are generally poor in nitrogen; an increased level of nitrogen could further promote the growth and spread of non-native species of plants, which are generally adapted to a higher level of soil nitrogen than native species. As we have discussed previously in this biological opinion, the proliferation of weedy species can compromise the value of the habitat of the desert tortoise.

Inland Energy (2007) expects nitrogen deposition resulting from the proposed project to occur in only trace amounts in the vicinity of the project. Nitrogen oxide (NO_X) emissions from the proposed project were studied using a model that incorporates the required atmospheric chemistry and chemical transformations necessary to compute nitrogen deposition. Nitrogen deposition rates were modeled at receptor grids which included the proposed project fence-line and sites occurring 1 to 3 miles distant. The maximum annual deposition rate of 0.083 kilogram per hectare per year was modeled to occur along the fence-line to the northeast of the facility, consistent with the predominant winds which blow most frequently from the south and south-southwest. The maximum concentrations of NO_X emissions declined to 0.003 kilogram per hectare per year at a location 3 miles from the proposed power plant source. Inland Energy estimates that the maximum rate pound of nitrogen deposition at the fence-line of the proposed

project would be approximately 1.2 ounces per acre (AMEC Earth and Environmental 2008b). This rate of nitrogen deposition is considered negligible and is unlikely to affect vegetative growth either in the proposed project vicinity or at more distant locations.

Offsite Conservation Measures

The City of Victorville has proposed to offset the adverse effects of the proposed facility on desert tortoise habitat by providing protected offsite compensation habitat at a rate negotiated with the California Department of Fish and Game. At the time this biological opinion was completed, the compensation plan had not been completed. The potential exists that a well-conceived compensation plan would promote the recovery of the desert tortoise; however, because we have no details on the compensation, we cannot assess its value for the desert tortoise at this time.

Summary

The City of Victorville has proposed numerous measures to avoid and reduce the adverse effects on the desert tortoise of the proposed action. Additionally, we expect that few desert tortoises are likely to be found on the site of proposed power plant, based on the findings of surveys conducted in the area. Consequently, we expect that few, in any, desert tortoises will be killed or injured by the construction and operation of the facility. Given numerous factors, including the facts that desert tortoises will move through habitat over time and the protective measures proposed by the City of Victorville are likely to prevent most mortality, we cannot predict, with absolute certainty, the number of desert tortoises that may be killed or injured during construction activities. Because the City of Victorville will fence the facility to preclude entry by desert tortoises, we do not expect that the operation of the facility will kill or injure any desert tortoises; we acknowledge that, over the life of the facility, some circumstances may occur that allow desert tortoises to enter the site but we anticipate that such occasions will be rare. Some desert tortoises may enter the unfenced transmission line area and may be encountered during project operation; we anticipate such instances would be uncommon.

The permanent 57 acres of disturbed areas and non-native grassland that would be lost as a result of the proposed action are considered to be of little to no value for desert tortoise. The permanent loss of 292 acres of habitat suitable for the desert tortoise resulting from installation of the power plant and certain utility features and the long-term, temporary habitat loss of 146 acres resulting from equipment staging areas and other utilities will not substantially reduce the reproduction, numbers, or distribution of the desert tortoise in the wild. We have reached this conclusion primarily because the habitat that will be lost or disturbed is adjacent an area of the Mojave Desert that is experiencing rapid urbanization and, as such, is not considered important habitat for the long-term survival of the desert tortoise.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. We are unaware of any non-federal activities within the action area that are reasonably certain to occur.

CONCLUSION

After reviewing its current status, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service's biological opinion that the Environmental Protection Agency's proposal to issue a prevention of significant deterioration permit to the City of Victorville for the construction and operation of the Victorville 2 hybrid power project is not likely to jeopardize the continued existence of the desert tortoise. We reached this conclusion primarily because the proposed action will affect a limited number of desert tortoises and habitat that is not considered important to the survival and recovery of the desert tortoise; additionally, the City of Victorville has proposed numerous measures to avoid and reduce the potential adverse effects of the action on the desert tortoise.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The measures described in this incidental take statement are non-discretionary; the Environmental Protection Agency must ensure that the City of Victorville undertakes these measures or makes them binding conditions of any authorization provided to contractors. If the City of Victorville fails to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. To monitor the impact of incidental take, the City of Victorville must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement (50 *Code of Federal Regulations* 402.14(i)(3)).

We anticipate that all desert tortoises within the action area may be taken during construction of the facility and its ancillary facilities; because only two desert tortoises were detected during surveys, we expect that the total number of animals that may be taken during construction will be extremely low. We anticipate that most of these individuals will be captured and translocated to either nearby suitable habitat or an off-site location. We anticipate that few, if any, desert tortoises are likely to be killed or injured by construction of the proposed power plant and its ancillary facilities because the site will be fenced to preclude their entry.

We expect few desert tortoises are likely to be killed or injured during operation of the power plant because it will be fenced to preclude their entry. We also expect few desert tortoises to be killed or injured during maintenance of the utilities because of the nature of these activities and the generally low number of desert tortoises in the area where these facilities are located.

We do not expect that any resident animals will be killed or injured as a result of the translocation of desert tortoises from the project area to off-site locations.

We cannot quantify the precise numbers of desert tortoises that may be captured, killed, or injured as a result of the actions that the City of Victorville has proposed because desert tortoises move over time; for example, more animals may have entered the action area since the time of the survey. We consider this circumstance unlikely, given that the action area is located in an area considered to support generally low densities of desert tortoises. Additionally, the protective measures proposed by the City of Victorville are likely to reduce substantially the level of mortality or injury. The exemption provided by this incidental take statement to the prohibitions against take contained in section 9 of the Act extends only to the 338-acre power plant site, the 50-acre staging areas, the Adelanto-Colusa-Helendale Roads access route used by project construction personnel, and the rights-of-way for the utility lines that will be disturbed during construction of the facility.

REASONABLE AND PRUDENT MEASURES

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize take of the desert tortoise during construction of the proposed power plant:

1. The City of Victorville must ensure that only experienced biologists conduct surveys for and translocate desert tortoises during the construction of the power plant.

2. The City of Victorville must ensure that the level of incidental take anticipated in this biological opinion is commensurate with the analysis contained herein.

3. The City of Victorville must provide a translocation plan to the Service for our written approval prior to the onset of ground-disturbing activities.

Our evaluation of the proposed action includes consideration of the protective measures proposed by the City of Victorville in its biological assessment and re-iterated in the Description of the Proposed Action section of this biological opinion. Consequently, any changes in these protective measures may constitute a modification of the proposed action that causes an effect to the desert tortoise that was not considered in the biological opinion and require re-initiation of consultation, pursuant to the implementing regulations of the section 7(a)(2) of the Act (50 *Code of Federal Regulations* 402.16). The following reasonable and prudent measures and terms and conditions are intended to compliment and clarify the protective measures proposed by the City of Victorville.

TERMS AND CONDITIONS

To be exempt from the prohibitions of section 9 of the Act, the City of Victorville must comply with the following terms and conditions, which implement the reasonable and prudent measures described in the previous section, and the reporting and monitoring requirements. These conditions are non-discretionary.

1. The following term and condition implements reasonable and prudent measure 1:

   The City of Victorville must ensure that only biologists authorized by the Service under the auspices of this biological opinion conduct clearance surveys for and translocate desert tortoises. We request that you provide us with the credentials of authorized biologists or biological monitors who you wish to conduct these duties at least 30 days prior to the time they must be in the field.

2. The following terms and conditions implement reasonable and prudent measure 2:

   a. To ensure that the measures proposed by the City of Victorville are effective and are being properly implemented, the City of Victorville or its agent must contact the Service immediately if it becomes aware that a desert tortoise has been killed or injured by project activities. At that time, the Service and the Environmental Protection Agency and its agent must review the circumstances surrounding the incident to determine whether additional protective measures are required. Project activities may continue pending the outcome of the review, provided that the proposed protective measures and any appropriate terms and conditions of this biological opinion have been and continue to be fully implemented.

   b. The Environmental Protection Agency must immediately re-initiate formal consultation with the Service, pursuant to section 7(a)(2) of the Endangered Species Act, if 3 desert tortoises are killed or injured by project activities within the action area.

2. The following term and condition implements reasonable and prudent measure 3:

The Environmental Protection Agency must ensure that the City of Victorville does not commence ground-disturbing activities until the Service has provided written approval of the translocation plan. The translocation plan must thoroughly address the following elements:

i. The survey methods that will be used to find and remove desert tortoises from the power plant site and staging areas;

ii. A protocol for holding and transporting desert tortoises from the project site to the translocation area;

iii. A description of the translocation area and proof that the land owner has agreed to receive the translocated desert tortoises;

iv. A protocol for monitoring the status of the translocated desert tortoises, including the frequency with which they will be checked, the length of time they will be monitored after translocation, and a method of marking them so they can be identified permanently;

v. A protocol for testing for disease and a strategy for dealing with clinically ill and seropositive animals; and

vi. A contingency plan and list of contacts in the event unforeseen circumstances arise.

We reserve the right to include additional provisions as the translocation plan is developed. Given that we expect that few desert tortoises will require translocation, we suggest that the level of monitoring be sufficient to assess the general status of the translocated animals; it does not need to study the effects of the translocation in a scientifically rigorous manner.

REPORTING REQUIREMENTS

Within 60 days of the completion of the proposed action, the City of Victorville must provide a report to the Service that provides details on the effects of the action on the desert tortoise. Specifically, the report must include information on any instances when desert tortoises were killed, injured, or handled; the circumstances of such incidents; and any actions undertaken to prevent similar instances from re-occurring. This report must also include any information required as a result of the translocation plan. We recommend that the City of Victorville provide us with any recommendations that would facilitate the implementation of the protective measures while maintaining protection of the desert tortoise.

DISPOSITION OF DEAD OR INJURED DESERT TORTOISES

Within 3 days of locating any dead or injured desert tortoises, you must notify the Service's Division of Law Enforcement (370 Amapola Avenue, Suite 114, Torrance, California 90501) and the Ventura Fish and Wildlife Office by telephone (805 644-1766) or by facsimile (805 644-3958). The report must include the date, time, location of the carcass or injured animal, a photograph, cause of death or injury, if known, and any other pertinent information.

Injured desert tortoises must be taken to a qualified veterinarian for treatment. If any injured desert tortoises survive, the Service must be contacted regarding their final disposition.

Care must be taken in handling dead specimens to preserve biological material in the best possible state for later analysis. The remains of desert tortoises must be placed with the U.S. Geological Survey (Contact: Kristin Berry, U.S. Geological Survey, 22835 Calle San Juan De Los Lagos, Moreno Valley, California 92553, (951-697-5361); if the U.S. Geological Survey does not want the carcass because the damage is too extensive, the carcass must be disposed of in an appropriate manner. Prior to the onset of ground-disturbing activities, the City of Victorville must contact the U.S. Geological Survey to determine whether it wants carcasses and to determine the proper handling of carcasses that it desires.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to use their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

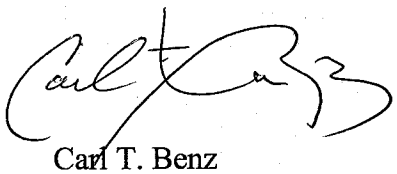
We recommend that the temporary fencing along the access roads to the power plant site be situated a few feet into habitat of the desert tortoise, rather than on the exposed road shoulder. Because some gaps will likely be present in the fence because of crossroads, desert tortoises may enter the road and become trapped on the road-side of the fence. If the fence is constructed in disturbed habitat on the shoulder, these animals may die of exposure. Constructing the fence a few feet within habitat would provide cover for these animals until they can find their way around the fence or be moved by project biologists. The installation of the fence within the edge of habitat will not result in a measurable adverse effect to the overall quality of the habitat in this area, which generally supports reduced densities of desert tortoises because of encroaching development. If the Environmental Protection Agency and other agencies decide to adopt this recommendation, we request that the authorized biologist be given the authority to direct placement of the fence to ensure it is properly installed and that desert tortoises be protected during its installation and removal.

REINITIATION NOTICE

This concludes formal consultation on the proposed construction of the Victorville 2 hybrid power plant. Reinitiation of formal consultation is required where discretionary federal involvement or control over the action has been retained or is authorized by law and: (a) if the amount or extent of taking specified in the incidental take statement is exceeded; (b) if new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (c) if the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion; or (d) if a new species is listed or critical habitat designated that may be affected by the identified action.

If you have any questions regarding this biological opinion, please contact Ray Bransfield of my staff at (805) 644-1766, extension 317.

Sincerely,



Carl T. Benz
Assistant Field Supervisor

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STATE OF CALIFORNIA
ENERGY RESOURCES
CONSERVATION AND DEVELOPMENT COMMISSION

In the Matter of:	)	Docket No. 07-AFC-1
	)	
Application for Certification,	)	**ELECTRONIC PROOF OF SERVICE**
for the VICTORVILLE 2	)	**LIST**
HYBRID POWER PROJECT	)	
by the City of Victorville	)	**(revised September 6, 2007)**
	)	
	)	

☒ Transmission via electronic mail and by depositing one original signed document with FedEx overnight mail delivery service at Costa Mesa, California with delivery fees thereon fully prepaid and addressed to the following:

DOCKET UNIT

CALIFORNIA ENERGY COMMISSION
Attn: DOCKET NO. 07-AFC-1
1516 Ninth Street, MS-4
Sacramento, California 95814-5512
docket@energy.state.ca.us

☒ Transmission via electronic mail addressed to the following:

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DECLARATION OF SERVICE

I, Paul Kihm, declare that on March 17, 2008, I deposited a copy of the attached:

APPLICATION FOR INCIDENTAL TAKE OF ENDANGERED SPECIES

with FedEx overnight mail delivery service at Costa Mesa, California with delivery fees thereon fully prepaid and addressed to the California Energy Commission. I further declare that transmission via electronic mail was consistent with the requirements of California Code of Regulations, title 20, sections 1209, 1209.5, and 1210. All electronic copies were sent to all those identified on the Proof of Service List above.

I declare under penalty of perjury that the foregoing is true and correct. Executed on March 17, 2008, at Costa Mesa, California.

Paul Kihm