SECTION 1.0
INTRODUCTION

1.1 PURPOSE OF THIS ENVIRONMENTAL IMPACT REPORT

The California Environmental Quality Act (CEQA) California Public Resources Code (PRC) Section 21002.1 states that the purpose of an environmental impact report (EIR) is to identify the significant effects on the environment of a project, to identify alternatives to the project, and to indicate the manner in which those significant impacts can be mitigated or avoided. A detailed description of the proposed Project is provided in Section 4.0, Project Description, of this Draft EIR.

The Project will require approval of certain discretionary actions by the County of Los Angeles (County) and other governmental agencies. Therefore, in accordance with PRC Section 21080, the proposed Project is subject to environmental review under CEQA. For purposes of complying with CEQA, the County, administered through the Department of Regional Planning, is identified as the Lead Agency for the proposed Project.

In accordance with Section 15121(a) of the CEQA Guidelines, this EIR is an informational document which will inform public agency decision makers and the public generally of: 1) the significant environmental effect of the Project; 2) identify possible ways to minimize the significant effects; and 3) describe reasonable alternatives to the Project. This Draft EIR was prepared in accordance with Section 15151 of the CEQA Guidelines, which states that:

> "An EIR should be prepared with a sufficient degree of analysis to provide decision makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection but for adequacy, completeness, and a good faith effort at full disclosure."

As such, the EIR is an important document that is intended to be used by decision makers when considering whether or not to approve, deny, or modify the proposed Project.

This draft EIR is intended to serve as a Project EIR under CEQA. Section 15161 of the State CEQA Guidelines states that a Project EIR should focus primarily on changes in the environment that would result from the development of the project. This Project EIR is intended to provide the environmental information necessary for the County of Los Angeles to make a final decision on the requested entitlements for this project. This EIR is also intended to support discretionary reviews and decisions by other agencies.

SECTION 2.0
EXECUTIVE SUMMARY

2.1 SUMMARY OF THE PROPOSED PROJECT

The proposed AV Solar Ranch One Project (Project) consists of a 230-megawatt (MW) solar photovoltaic (PV) facility on approximately 2,100 acres of former agricultural land located in northern Los Angeles County along State Route 138 (SR-138). The Project is proposed by AV Solar Ranch 1, LLC (Applicant). The proposed AV Solar Ranch One Project site is located in the Antelope Valley, in unincorporated Los Angeles County. Most of the Project site is undeveloped or had been used for agricultural production from the 1950s to 2004, and includes a residential ranch area. The Project site is located approximately 15 miles northwest of downtown Lancaster (refer to Figure 2-1). The Project site can be accessed via SR-138 (West Avenue D) from Interstate 5 (I-5) or State Route 14 (SR-14) from the west and east, respectively. The proposed Project site is primarily designated as N-1, "Non Urban 1" by the Antelope Valley Area Plan (Area Plan), and A-2, "Heavy Agriculture" by the Los Angeles County Zoning Ordinance.

Major project components include PV panel arrays, an electrical substation, a 20,000 square-foot Operations and Maintenance building with associated parking, and on-site drainage improvements consisting primarily of infiltration basins throughout the site. The proposed Project components also include perimeter fencing (wildlife-permeable), fire breaks, perimeter and internal access roads, a water well, two water tanks (containing approximately 100,000 and 10,000 gallons), and a septic system. The Project also includes a 230-kilovolt (kV) transmission line for interconnecting the electrical output of the Project to the regional transmission system. The proposed transmission line is approximately 4.25 miles long, including a 3.5-mile-long off-site portion that will interconnect to Southern California Edison's (SCE) planned Whirlwind Substation north of the Project site in southern Kern County. The Project is currently planned to begin construction in the fourth quarter of 2010 and to be completed by the end of 2013. The planned Project life is 30 years or more.

The Project is designed to meet the increasing demand for clean, renewable electrical power. The multiple benefits associated with developing this resource have been recognized repeatedly by both federal and state policy makers. Development of solar resources reduces reliance on foreign sources of fuel, promotes national security, diversifies energy portfolios, contributes to the reduction of greenhouse gas emissions, and generates "green" jobs. The Project will contribute much needed on-peak power to the electrical grid in California.

In addition, the Project will help California meet its statutory and regulatory goal of increasing renewable power generation. California has enacted legislation mandating that certain load serving entities (LSEs) procure enough renewable power to ensure that 20

percent of their retail sales are served by renewable resources by 2010, and is currently considering legislation (Senate Bill [SB] 14; Assembly Bill [AB] 64) that would increase the goal to 33 percent renewables by 2020. The California Air Resources Board has already adopted this requirement as part of its implementation of AB 32 (which addresses reductions in Greenhouse Gases [GHG]), and the Governor has directed State agencies to implement policies requiring LSEs to achieve 33 percent renewables by 2020 (Executive Order S-14-08, November 17, 2008). The Project is an eligible renewable resource within the meaning of the California Public Resources Code (Section 25741), and will help the State meet its current and planned goals for increasing renewable generation.

Refer to Section 4.0 (Project Description) of the EIR for more details regarding the proposed Project.

2.2 ISSUES TO BE RESOLVED

Section 15123(b)(3) of the CEQA Guidelines requires that an EIR identify issues to be resolved including the choice among alternatives and whether or how to mitigate significant impacts. With regard to the proposed Project, one issue has been identified that needs to be resolved with respect to the location of the off-site 230-kV transmission route.

The location of the proposed off-site transmission line along the 2-mile long portion in Kern County may need to be refined. Kern County has indicated to the Applicant that the County road rights-of-way in the area of the proposed Whirlwind Substation, as well as those in the vicinity of other substations in eastern Kern County that would serve proposed renewable energy projects, are not wide enough to accommodate all of the projects that would need to access the substations. Therefore, Kern County is proposing renewable energy transmission corridors for projects that would interconnect to these substations to ensure that all currently proposed and future projects are provided transmission access. Along 170th Street West, Kern County is suggesting that this corridor be up to 200 feet wide and located adjacent to the existing road right-of-way (ROW). Kern County has also indicated that they do not prefer underground transmission installations, but rather transmission poles that could accommodate more than one electrical circuit per pole. The proposed Project transmission pole design would accommodate this potential Kern County requirement. The Applicant is in discussions with Kern County officials to confirm that the proposed transmission line route in Kern County meets Kern County's needs. It is expected that this issue will be resolved prior to issuance of the Final EIR. The Draft EIR will be revised to address any changes required by Kern County to the transmission line route and/or design, as applicable.

2.3 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

A summary of various environmental impacts, including a listing of identified potentially significant impacts, proposed mitigation measures, and residual level of impact significance

after mitigation are presented by resource topic in Table 2-1 for the proposed Project. The table presents the summary of environmental impacts for the proposed Project in the following order: 1) Project Site; and 2) Off-site 230-kV Transmission Line. Refer to Section 5.0 (Environmental Impact Analysis) for more information. No unavoidable adverse significant impacts have been identified for the proposed Project or alternatives.

2.4 ALTERNATIVES

2.4.1 Introduction

The primary purpose of the proposed AV Solar Ranch One Project (Project) is to generate 230 MW of clean, renewable electrical power utilizing solar PV technology and to integrate the electrical output of the Project into the electrical grid. The electricity produced by the proposed Project will be sold via a Power Purchase Agreement (PPA) that will provide a set and secure rate of financial return for the Project.

A key objective of the Applicant was to locate the PV facility in an area with the following characteristics: 1) adequate solar radiation; 2) close proximity to a high capacity, 230-kV substation with adequate transmission capacity to convey the electrical output of the Project 3) lack of threatened and/or endangered biological species on the site; 4) relatively flat site that has been previously disturbed to minimize disturbance to native habitat and to minimize the need for site grading to level the site; 5) existing access to accommodate construction workforce needs; 6) lack of nearby sensitive receptors or land uses to minimize potential conflicts with Project development; 7) landowner that controls and is willing to sell a large enough parcel of land at market price (approximately 2,000 acres minimum) to accommodate a 230-MW PV facility; and 8) access to nearby workforce to minimize traffic and socioeconomic impacts.

Another key objective of the Applicant was to locate the off-site 230-kV transmission line in an area such that: 1) the length of the transmission line interconnection to the electrical grid is less than 5 miles to minimize transmission line losses and costs; 2) necessary transmission line ROW (either within or adjacent to the public road ROW) can be acquired; 3) lack of threatened and/or endangered biological species along the transmission line route; and 4) locate the transmission line route near other linear facilities such as roads and pipelines to minimize new disturbance and potential conflicts with adjacent land uses.

The final key Project objective of the Applicant is to utilize a proven PV panel and equipment design in order to ensure that the facility will operate as planned in a reliable manner over the life of the Project in order to meet the primary purpose of the Project (i.e., to generate 230 MW of clean, renewable electrical power and to meet the terms of the PPA with Pacific Gas and Electric Company [PG&E] and to maximize the 250-MW interconnection request with the California Independent System Operator [CAISO]).

The proposed Project has been designed with the intent of meeting the objectives discussed above.

In accordance with *CEQA Guidelines* Section 15126.6, this EIR assesses a range of reasonable alternatives to the proposed Project, which could feasibly attain most of the basic objectives of the proposed Project and avoid or substantially lessen any of the significant effects of the proposed Project. The alternatives considered include:

- Alternative facility layout
- Underground transmission lines

In addition, the EIR considers the No Project Alternative.

2.4.2 Other Alternatives Considered

In addition to the alternatives listed above (Section 2.4.1), the following alternatives were considered, but eliminated from further consideration, due to their inability to substantially meet the Project objectives and/or their infeasibility:

- Alternative sites
- Alternative transmission line route(s)
- Alternative project size
- Alternative technologies
- Alternative drainage improvements (Drainages A and B)

Refer to Section 6.0 (Alternatives) of the EIR for more information regarding these potential alternatives, the screening process used, and the rationale for eliminating these alternatives from further consideration.

2.4.3 Alternative 1: No Project

Under the No Project Alternative, the proposed Project would not be approved or implemented—i.e., status quo. The potential environmental impacts and benefits of the proposed AV Solar Ranch One Project would not occur as a direct consequence of Project implementation under the No Project Alternative. The No Project Alternative would involve taking no action to generate 230 MW of clean, renewable electrical power utilizing solar PV technology and to integrate the electrical output of the Project into the electrical grid. This alternative would not allow the Project to help the State of California meet its current and planned goals for increasing renewable generation.

Additionally, if the Project is not developed for solar energy generation, the property would likely be developed for other uses. Possible alternative uses could include residential uses, since a portion of the property had been previously subdivided, and the previous landowner was granted a CUP from LACDRP for development of 160 residential units as part of a potential master planned development. Additionally, based on the current County zoning ordinance, allowable uses by right under the property's existing zoning designation (Heavy Agriculture [A-2]) consist of: agriculture (crops, dairies, animal shelter and kennels, hogs, manure spreading and sales); residential uses (including but not limited to adult residential facilities, child care homes, and single family homes); fairgrounds; certain packing and processing plants; and resource extraction (i.e., oil wells, including the installation and use of such equipment, structures and facilities necessary or convenient for all customary drilling and producing operations, including initial separation of oil, gas, and water, and storage, handling, recycling, and transporting of such oil, gas, and water from the premises). Such other uses would have associated impacts to environmental resources.

In summary, the No Project Alternative does not constitute a reasonable alternative to the proposed Project because it is incapable of meeting the Project goals and objectives, or contributing to the State's ability to meet its near- and long-term renewable energy generation goals and objectives. If the proposed Project is not approved and implemented it is likely that the Project site would be developed for other purposes (e.g., residential) with commensurate environmental impacts. Therefore, it is not reasonable to assume that the No Project Alternative would necessarily result in no impacts or fewer impacts than the proposed Project.

2.4.4 Alternative 2: Alternative Facility Layout

Alternative 2, the Alternative Facility Layout, increases the Project development setback (i.e., distance from the Project property line to the proposed facility fence) to 250 feet from adjacent County Significant Ecological Area (SEA) #60 (Joshua Tree Woodland Habitat) areas along the northern and northeastern portions of the Project site, and increases the Project setback from Drainage C along the southern Project site development boundary from a minimum of approximately 150 feet (in the proposed configuration) to 1,500 feet. The purpose of Alternative 2 would be to lessen potential Project impacts to biological resources.

While the proposed Project design provides minimum setback distances of 70 to 100 feet from the Project property boundary to the proposed fence line (as shown on Figure 4.4-1A) to protect adjacent SEA habitat areas, incorporation of a 250-foot setback from the property boundaries adjacent to SEA areas would provide a larger buffer distance between the proposed development and the adjacent SEA areas. The 250-foot buffer areas would result in on-site avoidance of approximately 75 acres of primarily rabbitbrush scrub habitat (non-

sensitive habitat) in the buffer area, and would reduce the site generating capacity by approximately 4 MW.

The 1,500-foot setback from Drainage C under Alternative 2 would avoid areas containing both wildflower field (sensitive habitat) and rubber rabbitbrush scrub (non-sensitive habitat). Alternative 2 would increase the wildflower avoidance area, provide a larger buffer from Drainage C, and allow wildlife movement in the setback area. This setback would preclude approximately 180 acres from development, of which approximately 120 acres comprises wildflower field and 60 acres of rabbitbrush scrub. Avoidance of this acreage would further reduce the Project generation output by approximately 21 MW.

In general, other Project facilities such as the O&M building, substation, transmission line, etc. would remain unchanged. Incorporation of the increased buffer areas from the adjacent SEA areas and Drainage C would decrease the developable area on the Project site by approximately 10 percent and impacts would be less than significant for biological resources under Alternative 2. Additionally, Alternative 2 would reduce the facility's generating capacity by approximately 25 MW. As a result, implementation of Alternative 2 would render the Project incapable of meeting its contractual electricity delivery obligation under the Project power purchase agreement, and consequently would incur financial penalties under the contract terms with PG&E. For this reason, Alternative 2 is not considered to be fully capable of meeting the above-described Project objective to fulfill its contractual electrical delivery obligation.

2.4.5 Alternative 3: Underground Transmission Lines

Alternative 3, Underground Transmission Lines, would underground substantial portions of the Project-related 34.5-kV and 230-kV transmission lines. The Alternative 3 underground transmission line locations would be the same as the corresponding overhead lines for the proposed Project. Solar field characteristics and other project features under this alternative would remain unchanged compared to the proposed Project.

The majority of the proposed on-site overhead 34.5-kV transmission lines (approximately 3 miles) would be buried underground rather than using the proposed Project's overhead pole-mounted system. The 34.5-kV transmission lines would remain aboveground at the 170th Street West crossing near the on-site substation and at crossings of state jurisdictional drainages. The aboveground construction is required at the 170th Street West crossing because the Los Angeles Department of Water and Power (LADWP) aqueduct pipeline, located along the west side of 170th Street West, cannot be crossed by an underground transmission line. Aboveground crossings would be used at jurisdictional drainages to avoid disturbance to these features.

The 230-kV transmission line would be installed underground from the Project substation to the Kern County line (approximate total length of 2.25 miles). The underground portion (i.e., the transmission line route in Los Angeles County) would be aboveground at two locations in order to cross 170th Street West (at the northern Project boundary and just prior to the Kern County boundary) while avoiding interference with the LADWP aqueduct. The transmission line would be aboveground in Kern County, based on Kern County's request.

Operationally, both overhead and underground collection systems function similarly, where electricity is transported through conductors. Beyond these operational similarities however, there are physical differences that include: 1) the degree of disturbance to the surrounding area during construction; 2) the degree of permanent disturbance; and 3) the maintenance and repair activities (i.e., undergrounded transmission lines have limited access in the event that maintenance is required, and would potentially result in reduced reliability and longer power outages and duration of repairs). Implementation of Alternative 3 would require a greater temporary disturbance and excavation during construction (estimated additional 7,871 cubic yards of excavations), would limit future land use options above the underground facilities due to buried conduit protection needs, and would limit access for maintenance, if needed.

Potential impacts to biological and agricultural resources due to implementation of Alternative 3, as a result of the underground 230-kV portion, would be greater than for the proposed Project overhead system. It is important to note that once underground transmission line facilities are constructed, most land uses above the underground line would be precluded, since the underground transmission line duct bank is typically surrounded on all sides by a specially formulated thermal concrete to within 12 inches of the ground surface, which creates a physical barrier to future land use (for instance, no agricultural use could occur above the undergrounded line). However, the underground transmission duct bank is generally compatible with road shoulder/edge of road ROW uses. Key differences between Alternative 3 and the proposed Project include:

- The undergrounded 230-kV portion of Alternative 3 is estimated to temporarily disturb approximately 1.5 acres of Joshua tree woodland habitat, where it is expected that construction of the proposed overhead poles would disturb only about 0.6 acre.
- It is estimated that the undergrounded 230-kV portion could potentially permanently impact approximately 0.6 acre of Joshua tree woodland habitat, whereas it is expected that the proposed overhead poles can be located to avoid Joshua trees and less than 0.01 acre of Joshua tree woodland habitat would be permanently impacted.
- Alternative 3 could preclude or limit future land uses over the approximately 1.5-mile-long off-site buried conduit bank (and vault areas) for the 230-kV transmission line.
- The entire underground system would require greater amounts of excavation (approximately 7,871 cubic yards of additional excavation) to install due to the required

trenching of the conduit banks and in the case of the 230-kV line, access vaults (including required importation of thermal concrete backfill).

- Alternative 3 would reduce visual impacts relative to the proposed Project (note: overhead transmission line impact is less than significant).
- Alternative 3 would result in increased truck traffic and air emissions during construction compared to the proposed Project, but impacts would be less than significant.

As discussed above, Kern County is proposing that new transmission lines located in Kern County and interconnecting to the three substations associated with the SCE Tehachapi Renewable Transmission Project, including Whirlwind, will be required to utilize a common corridor, adjacent to the county road right-of-way, and share transmission towers. Once built, additional conductors cannot be added to an underground transmission line without reconstruction of the underground bank and vault. As a result, undergrounding of the Project 230-kV line would preclude co-locating additional transmission lines with those of the proposed Project in portions that are installed underground.

2.4.6 Environmentally Superior Alternative

The No Project Alternative would avoid the impacts associated with implementation of the proposed Project. The avoided impacts would include adverse and beneficial impacts. However, the No Project Alternative is not capable of meeting the Project's goals and objectives.

The environmentally superior alternative is considered to be Alternative 2 (Alternative Facility Layout), which reduces potential Project impacts to sensitive biological resources. Although the mitigation measures presented in Section 5.7.5 (Biological Resources) would reduce the impacts to biological resources associated with development of the proposed Project to less than significant levels, the Drainage C and Joshua tree woodland habitat setback buffers that are included under Alternative 2 are considered to be environmentally superior. However, Alternative 2 would reduce the facility renewable energy output by 25 MW and is thus incapable of fully meeting the Project's goals and objectives under the Applicant's PPA with PG&E resulting in financial penalties to the Applicant under the PPA terms.

Alternative 3 would slightly increase biological impacts to Joshua tree woodland, and would increase short-term construction impacts (e.g., traffic and air quality), but these would remain less than significant with mitigation. This alternative would reduce visual impacts and resultant changes in character from the on-site and off-site transmission lines, and would not impact the overall Project goals and objectives. With the exception of three required overhead crossings of 170th Street West, Alternative 3 would also eliminate corona noise and electric fields associated with overhead transmission lines in the vicinity of overhead

transmission lines in Los Angeles County. Finally, undergrounding the majority of the proposed overhead 34.5-kV and 230-kV transmission lines would be consistent with Los Angeles County's transmission line undergrounding policy as stated in the Antelope Valley Areawide Plan (adopted by the Board of Supervisors on December 4, 1986) in Chapter V, Policy Statements regarding "physical appearances/community image" (65. Transmission line should be located underground where feasible). Alternative 3 is therefore considered to be a viable and environmentally preferable alternative that is capable of meeting the Project's goals and objectives.

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TABLE 2-1
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary		Mitigation Measures	Resulting Level of Significance
Project Site	Off-site Transmission		
GEOTECHNICAL HAZARDS			
The Project site is not located within a known active or potential active fault zone, seismic hazards zone, or Alquist-Priolo Fault Zone. Implementation of the Project mitigation design parameters would reduce potential seismic effects to less than significant.	The Project transmission line is not located within a known active or potential active fault zone, seismic hazards zone, or Alquist-Priolo Fault Zone. Implementation of the Project design parameters would mitigate potential seismic effects to less than significant.	Mitigation Measure (MM) 5.2-1: Implementation of Geotechnical Engineering Report Recommendations. The design and construction of the Project shall comply with applicable building codes and standards (e.g., CBC) as well as the recommendations in the geotechnical engineering report (Terracon 2009) to the satisfaction of the Los Angeles County Department of Public Works.	Less than significant
The Project site is not subject to high groundwater, and on-site soils are not identified to be susceptible to hydrocompaction or subsidence. The facility would be designed to CBC and County standards, and geotechnical report recommendations, which would further ensure that potential impacts would be minimized to less than significant levels.	The transmission line route is not located within an area with high groundwater, or soils identified to be susceptible to hydrocompaction or subsidence. The transmission line would be designed to CBC and County standards, and geotechnical report recommendations, such that potential impacts would be minimized to less than significant levels.	None recommended in addition to MM 5.2-1 (Implementation of Geotechnical Engineering Report Recommendations).	Less than significant
The Project would entail substantial grading activities. However, grading would be: balanced cut and fill; performed in accordance with a grading plan approved by LACDPW; and performed in conjunction with BMP implementation. As a result, the Project	The transmission line would not require substantial grading or alteration of topography that would result in significant adverse impacts. As a result, the transmission line would result in less than significant	No mitigation is proposed or is required.	Less than significant

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary		Mitigation Measures	Resulting Level of Significance
Project Site	Off-site Transmission		
is not expected to result in significant adverse impacts due to earthwork activities.	impacts.		
The Project site soils exhibit low expansive potential, and the Project would be designed in accordance with CBC standards and geotechnical report recommendations. As a result, the Project would be expected to result in less than significant impacts due to expansive soils.	The transmission line route is not located on expansive soils, and the transmission line would be designed in accordance with CBC standards and geotechnical report recommendations. As a result, the Project would be expected to result in less than significant impacts.	None recommended in addition to MM 5.2-1 (Implementation of Geotechnical Engineering Report Recommendations).	Less than significant
FLOOD HAZARDS			
The Project property contains four ephemeral drainages. The Project is designed to avoid these drainages, and incorporates adequate setbacks in order to provide for long-term protection and stability of these drainages. As a result, impacts would be less than significant.	No drainage courses as identified on the USGS Fairmont Butte Quadrangle were found during URS field surveys in 2009. The proposed transmission line is expected to result in less than significant impacts.	No mitigation is proposed or is required.	Less than significant
The majority of the Project site is mapped as Zone X, Unshaded and Shaded, and the portion of Drainage C on the site is mapped as Zone A. The proposed Project is designed to	Approximately 22 transmission structures would be located on the edge of the 100-year floodplain (Zone A), while the remainder are located in Zone X, Unshaded. The transmission	No mitigation is proposed or is required.	Less than significant

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary		Mitigation Measures	Resulting Level of Significance
Project Site	Off-site Transmission		
withstand scouring or undermining of foundations in areas that may be subject to periodic inundation, and would avoid all drainages (including Drainage C and the associated Zone A area) and incorporate appropriate setbacks. These design considerations are expected to result in less than significant effects.	line poles are designed to withstand potential flooding and erosion hazards, and would be installed in accordance with applicable floodplain development guidelines. Based on these design measures as well as the small total footprint located within a flood plain, impacts are expected to be less than significant.		
The Project site is not located adjacent to significant slopes, and therefore is expected to result in less than significant impacts related to mudflow conditions.	The proposed transmission line is not located adjacent to significant slopes and therefore is expected to result in less than significant impacts related to mudflow conditions.	No mitigation is proposed or is required.	Less than significant
Project construction would involve earth disturbance and selective vegetation clearing, and increase of impervious surfaces, which have the potential to increase runoff and erosion.	Vegetation and soil may be disturbed by vehicles and work activities, and may result in a less than 10 percent reduction in the infiltration and absorption capacity of surface soils.	MM 5.3-1: Erosion Control and Stormwater Management Measures. In order to ensure that Project-related erosion and debris deposition as well as stormwater-related impacts would be minimized, the design measures specified in the Drainage Concept Report (Psomas 2009) and the following measures shall be implemented subject to review and approval by the Los Angeles County Department of Public Works (LACDPW): • Avoidance of all drainage areas: Construction and operational phase activities shall avoid all on-site drainages and FEMA Zone A floodplain areas. Solar field development shall be set back from the two major drainages (Drainages A and C) by a minimum of approximately 100 feet from the tops of banks for both Drainages	Less than significant

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary		Mitigation Measures	Resulting Level of Significance
Project Site	Off-site Transmission		
		A and C. Additionally, all Project development shall be set back a minimum of 100 feet from the FEMA Zone A floodplain for Drainage C. • Applicant shall comply with NPDES requirements of the Lahontan Regional Water Quality Control Board (LRWQCB) and the LACDPW.	
The facility would be designed in accordance with Los Angeles County LID standards and LACDPW requirements to conform to the natural local watershed, maintain site drainage patterns, and balance site runoff, and as a result, would result in less than significant effects to alter the existing drainage pattern.	Construction and operation of the transmission line would occupy a small footprint that would result in negligible alteration of existing drainage patterns. Therefore, the transmission line is expected to result in less than significant impacts.	No mitigation measure recommended in addition to proposed Project engineering design in accordance with Los Angeles County LID Standards and LACDPW requirements for balanced site runoff.	Less than significant
FIRE HAZARDS			
The Project site is not located within a Very High Hazard Severity Zone. The Project site is located within Fire Zone 3, which is assigned to all unincorporated territories within the County unless established otherwise. The Project would comply with all required Fire Code requirements. As a result, the Project impacts would be	The transmission line route is neither located within a Very High Hazard Severity Zone in Los Angeles County, nor a special fire hazard area in Kern County. As a result, the transmission line (which will be designed and construction in accordance with fire code and design standards) would result in less than significant impacts	No mitigation is proposed or is required.	Less than significant

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary		Mitigation Measures	Resulting Level of Significance
Project Site	Off-site Transmission		
less than significant.	related to Fire Zone 4.		
The Project site is accessed via existing roadway systems, and site access would be designed to meet LACFD standards. Construction of utilities across SR-138 may potentially encroach into the traveled roadway. Implementation of MM 5.11–1 (Provide Adequate Worksite Traffic Control) requires worksite Traffic Control Plans, permits, and County coordination, such that emergency access would not be significantly affected. As a result, Project facility impacts to access would be less than significant.	The transmission line is adequately served by existing access via 170th Street West. Construction of the transmission line along 170th Street West may potentially encroach into and cross the traveled roadway. Implementation of MM 5.11-1 (Provide Adequate Worksite Traffic Control) requires worksite Traffic Control Plans, permits, and County coordination, such that emergency access is not significantly affected. As a result, the transmission line impacts to access would be less than significant.	None recommended in addition to MM 5.11-1 (Provide Adequate Worksite Traffic Control).	Less than significant
The Project site is expected to provide adequate firewater yields for Project construction and operation, based on on-site well testing data. In accordance with LACFD requirements, the Project would maintain adequate quantities of firewater in the Project water storage tanks, and adequate pressure would be delivered by an electric pump. Impacts are expected to be less than significant.	Firewater supplied by on-site groundwater wells would be available for responding fire truck use, as applicable. As a result, the transmission line would be expected to cause less than significant impacts.	No mitigation is proposed or is required.	Less than significant

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary		Mitigation Measures	Resulting Level of Significance
Project Site	Off-site Transmission		
Project fire risks during construction pertain to smoking, refueling, and welding activities, and vehicle and equipment use off roadways. Project fire hazards during operation result from use of fuel and oils, and use of maintenance equipment and vehicles.	Transmission line fire risks during construction pertain to smoking, refueling, welding activities, and vehicle and equipment use off roadways. During operation, transmission lines may pose a fire hazard when a conducting object comes in close proximity to a line. The transmission line design, vegetation management, and maintenance for the on-site and off-site transmission lines would be implemented in accordance with the County Fire Codes, PRC Sections 4292 and 4293, and CPUC GO 95, as applicable. As a result, construction and operation of the transmission lines with mitigation (MM 5.4-1, Fire Protection and Prevention Plan) would be expected to result in less than significant impacts related to fire risks.	MM-5.4-1: Fire Protection and Prevention Plan. The proposed Project shall develop and submit a Fire Protection and Prevention Plan to the LACFD for review and approval prior to issuance of a Grading Permit. The Plan shall address construction and operation activities for the Project, and establish standards and practices that will minimize the risk of fire danger, and in the case of fire, provide for immediate suppression and notification. The Fire Protection and Prevention Plan shall address spark arresters, smoking and fire rules, storage and parking areas, use of gasoline-powered tools, road closures, use of a fire guard, and fire suppression equipment and training requirements. In addition, all vehicle parking areas, storage areas, stationary engine sites and welding areas shall be cleared of all vegetation, and flammable materials. All areas used for dispensing or storage of gasoline, diesel fuel or other oil products shall be cleared of vegetation and other flammable materials. These areas shall be posted with signs identifying they are “No Smoking” areas. An interim fire protection system shall be in place during construction until the permanent system is completed. The Plan shall also address vegetation clearance and maintenance requirements applicable to the transmission pole structures during operation. Special attention shall be paid to operations involving open flames, such as welding, and use of flammable materials. Personnel involved in such operations shall have appropriate training. A fire watch utilizing appropriately classed extinguishers or other equipment shall be maintained during hot work operations. Site personnel shall not be expected to fight fires past the incident stage. The local responding fire	Less than significant

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary			
Project Site	Off-site Transmission	Mitigation Measures	Resulting Level of Significance
		officials shall be given information on the site hazards and the location of these hazards, and the information shall be included in the emergency response planning. Materials brought on-site shall conform to contract requirements, insofar as flame resistance or fireproof characteristics are concerned. Specific materials in this category include fuels, paints, solvents, plastic materials, lumber, paper, boxes, and crating materials. Specific attention shall be given to storage of compressed gas, fuels, solvents, and paint. Electrical wiring and equipment located in inside storage rooms used for Class I liquids shall be stored in accordance with applicable regulations. Outside storage areas shall be graded to divert possible spills away from buildings and shall be kept clear of vegetation and other combustible materials. On-site fire prevention during construction shall consist of portable and fixed firefighting equipment. Portable firefighting equipment shall consist of fire extinguishers and small hose lines in conformance with Cal-OSHA and the National Fire Protection Association (NFPA) for the potential types of fire from construction activities. Periodic fire prevention inspections shall be conducted by the contractor's safety representative. Fire extinguishers shall be inspected routinely and replaced immediately if defective or in need of recharge. All firefighting equipment shall be conspicuously located and marked with unobstructed access. A water supply of sufficient volume, duration, or pressure to operate the required firefighting equipment shall be provided on-site. Authorized storage areas and containers for	

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary			
Project Site	Off-site Transmission	Mitigation Measures	Resulting Level of Significance
		flammable materials shall be used with adequate fire control services. The Operations Fire Protection and Prevention Program shall address the following: • Names and/or job titles responsible for maintaining equipment and accumulation of flammable or combustible material control • Procedures in the event of fire • Fire alarm and protection equipment • System and equipment maintenance • Monthly inspections • Annual inspections • Firefighting demonstrations • Housekeeping practices • Training	
WATER QUALITY			
The Project on-site well investigation indicates that the groundwater at the Project site and vicinity is high quality. The Project would treat water used for domestic and process needs to meet water quality requirements. Less than significant effects are expected.	Transmission line water needs would be served by the on-site wells located on the Project site. As a result, the transmission line would result in less than significant effects to this criterion.	No mitigation is proposed or is required.	Less than significant

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary		Mitigation Measures	Resulting Level of Significance
Project Site	Off-site Transmission		
The Project site is not located within an area having high groundwater or geotechnical limits, and the proposed septic system would not be located in close proximity to a drainage course. The proposed septic system shall be installed in accordance with LACDPH standards, as identified in MM 5.5-1 (On-site Wastewater Treatment System Feasibility Report). The Project would result in less than significant impacts to this criterion.	The transmission line does not involve septic tank use; thus no impacts are expected.	Mitigation Measure 5.5-1: On-site Wastewater Treatment System Feasibility Report. Prior to construction/installation of the on-site septic/leach field system, a complete OWTS feasibility report shall be submitted to the LACDPH for review and approval. The feasibility report shall be prepared in conformance with the requirements outlined in the current version of LACDPH guidelines, "On-site Wastewater Treatment System Guidelines."	Less than significant
The Project construction activities would not reach the depth of groundwater, which is estimated to be approximately 130 to 200 feet bgs. Construction phase earth disturbance activities would be managed through implementation of MM 5.3-1, Erosion Control and Stormwater Management Measures. As a result, the Project construction would be expected to result in less than significant impacts.	Construction of the transmission line would not be expected to reach groundwater. Transmission line earth disturbance activities would be managed through BMPs implemented in accordance with the NPDES General Permit (via the construction SWPPP) and SUSMP for construction activities (MM 5.3-1, Erosion Control and Stormwater Management Measures). As a result, the transmission line construction would be anticipated to result in less than significant impacts.	None recommended in addition to MM 5.3-1 (Erosion Control and Stormwater Management Measures).	Less than significant

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary		Mitigation Measures	Resulting Level of Significance
Project Site	Off-site Transmission		
The Project would conform to operation Waste Discharge Requirements, and would implement MM 5.3-1, Erosion Control and Stormwater Management Measures, which would include requirements and BMPs needed to comply with the LRWQCB Basin Plan and Los Angeles County LIDS Standards Manual. As a result, the Project would be anticipated to result in less than significant impacts.	The Operations Erosion Control and Stormwater Management Plan (MM 5.3-1, Erosion Control and Stormwater Management Measures) would include BMPs to implement in order to manage potential stormwater pollutants from the operation of the transmission line. Less than significant impacts are anticipated from the transmission line.	None recommended in addition to MM 5.3-1 (Erosion Control and Stormwater Management Measures).	Less than significant
AIR QUALITY			
The Project is categorized as one of regional significance based on site acreage. However, the Project's operational emissions are below applicable significance thresholds. As a result, impacts to air quality would not be regionally significant. Additionally, the Project would not trigger traffic congestion due to the low number of employees (16) during operation; thus impacts would be less than significant.	The transmission line effects are included in the Project site assessment for potential exceedances of State criteria for regional significance. Impacts for the overall Project are less than significant for this criterion.	No mitigation is proposed or is required.	Less than significant
Construction of the Project would exceed AVAQMD thresholds if the Project air quality controls were not	The transmission line construction emissions would not result in substantial emissions with	MM 5.6-1: Ensure AVAQMD Construction Emission Thresholds would be Met. Prior to issuance of the grading permit, the Applicant shall select an engineering, procurement, and construction (EPC)	Less than significant

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary			
Project Site	Off-site Transmission	Mitigation Measures	Resulting Level of Significance
implemented. With implementation of air quality controls, the Project activities during construction would not exceed PM_{10} and NO_X AVAQMD thresholds of significance. The Project, including the transmission line, would not exceed AVAQMD thresholds of significance during operation; thus, impacts during operation would be less than significant.	implementation of air quality control mitigation measures. Operation and maintenance activities for the transmission line would be infrequent, and would result in negligible impacts to AVAQMD thresholds.	contractor to build the Project. The Applicant/EPC contractor shall be required to demonstrate that the final construction plans will not result in exceedances of applicable AVAQMD air emission significance thresholds during construction of the Project to the satisfaction of AVAQMD and LACDRP. Prior to issuance of a grading permit, the Applicant shall prepare a report describing the Applicant's final engineering design-based plan for constructing the Project, including: 1) scheduling of construction activities; 2) equipment usage and details; 3) construction workforce loading; 4) truck deliveries schedule; and 5) ground disturbing/dust generating activities, etc. The report shall include emission calculations to demonstrate that the final construction plan will not result in exceedances of all applicable AVAQMD criteria pollutant emissions thresholds to the satisfaction of AVAQMD. The emission calculations shall include consideration of the emission reductions provided by implementation of Mitigation Measures 5.6-2 through 5.6-10, below. MM 5.6-2: Develop and Implement Fugitive Dust Emission Control Plan. The Applicant shall develop a Fugitive Dust Emission Control Plan (FDECP) for construction work. The FDECP shall be submitted to AVAQMD for review and approval prior to issuance of a grading permit. Measures to be incorporated into the FDECP shall include, but are not limited to the following: • The proposed PM measures (#24 to #44) in AVAQMD's List and Implementation Schedule for District Measures to Reduce PM Pursuant to Health & Safety Code §39614(d) shall be incorporated into the fugitive dust control plan, as applicable.	

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary			
Project Site	Off-site Transmission	Mitigation Measures	Resulting Level of Significance
		• Non-toxic soil binders shall be applied per manufacturer recommendations to active unpaved roadways, unpaved staging areas, and unpaved parking area(s) throughout construction to reduce fugitive dust emissions. • Travel on unpaved roads shall be reduced to the extent possible, by limiting the travel of heavy equipment in and out of the unpaved areas. • Water the disturbed areas of the active construction sites at least three times per day, (when soil moisture conditions result in dust generation) and more often if visible fugitive dust leaving the site is noted. • Enclose, cover, water twice daily, and/or apply non-toxic soil binders according to manufacturer's specifications to exposed piles of soils with a five percent or greater silt content. • Maintain unpaved road vehicle travel to the lowest practical speeds, and no greater than 15 miles per hour (mph), to reduce fugitive dust emissions. • All vehicle tires shall be inspected, be free of dirt, and washed as necessary prior to entering paved roadways from the Project site. • Install wheel washers or wash the wheels of trucks and other heavy equipment where vehicles exit the site. • Cover all trucks hauling soil and other loose material, or require at least 2 feet of freeboard. • Establish a vegetative ground cover (in compliance with biological	

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary			
Project Site	Off-site Transmission	Mitigation Measures	Resulting Level of Significance
		resources impact mitigation measures) or otherwise create stabilized surfaces on all unpaved areas through application of dust palliatives at each of the construction sites within 21 days after active construction operations have ceased. • Prepare contingency for high wind periods (greater than 25 mph) to shutdown or mitigate activity as necessary to control fugitive dust. • Travel routes to each construction site area shall be developed to minimize unpaved road travel. Travel management shall include staging of deliveries to minimize idling or congestion, use of dust palliatives or soil tackifiers on road surfaces, and minimizing travel distance. MM 5.6-3: Dust Plume Response Requirement. An air quality construction mitigation manager (AQCMM) or delegate shall monitor all construction activities for visible dust plumes. Observations of visible dust plumes that have the potential to be transported: 1) off the Project site; 2) 200 feet beyond the centerline of the construction of linear facilities; or 3) within 100 feet upwind of any regularly occupied structures not owned by the Project owner indicate that existing mitigation measures are not resulting in effective mitigation. The AQCMM or Delegate shall promptly implement additional dust plume reduction measures in the event that such visible dust plumes are observed. Additional measures to be implemented, as necessary, shall include increased watering, application of dust palliatives, and/or scaled back construction activities up to and including temporary work cessation.	

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary			
Project Site	Off-site Transmission	Mitigation Measures	Resulting Level of Significance
		MM 5.6-4: Off-road Diesel-fueled Equipment Standards. All portable construction diesel engines not registered under CARB's Statewide Portable Equipment Registration Program, which have a rating of 50 hp or more, and all off-road construction diesel engines not registered under CARB's In-use Off-road Diesel Vehicle Regulation, which have a rating of 25 hp or more, shall meet, the projected 2011 fleet average of NOX and PM emissions as that predicted by the OFFROAD2007 model in Appendix D. The EPC shall use the CARB Portable Diesel Engine Airborne Toxic Control Measure (ATCM) Fleet Calculators and the Off-road Diesel Fleet Average Calculators (for large/medium fleets) in accordance with the respective regulation under Title 13 of the California Code of Regulations (CCR) to conduct this comparison. No Tier 0 diesel equipment shall be used at the site after the initial calculation/registration without recalculation using the CARB fleet calculators. The fleet average calculation of the on site equipment shall be conducted annually to ensure compliance. The EPC contractor shall ensure labeling of all portable and off road diesel equipment in accordance with Title 13 of the CCR. MM 5.6-5: Limit Vehicle Traffic and Equipment Use. Vehicle trips and equipment use shall be limited by efficiently scheduling staff and daily construction activities to minimize the use of unnecessary/duplicate equipment. MM 5.6-6: Heavy Duty Diesel Water Haul Vehicle Equipment Standards. For the pile foundation case (which results in higher air emissions than the ballast foundation case and requires additional mitigation), the EPC shall use 2006 model or newer engines in order to meet the EMFAC predicted emissions levels in grams of pollutant per	

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary			
Project Site	Off-site Transmission	Mitigation Measures	Resulting Level of Significance
		mile travelled (g/mile) of on-road heavy duty diesel trucks used for water hauling at the site. The EPC contractor shall ensure labeling of such trucks to indicate model year. MM 5.6-7: On-road Vehicles Standards. All on-road construction vehicles shall meet all applicable California on-road emission standards and shall be licensed in the State of California. This does not apply to construction worker personal vehicles. MM 5.6-8: Properly Maintain Mechanical Equipment. The construction contractor shall ensure that all mechanical equipment associated with Project construction is properly tuned and maintained in accordance with the manufacturer's specifications. MM 5.6-9: Restrict Engine Idling to 5 Minutes. Diesel engine idle time shall be restricted to no more than 5 minutes as required by the CARB engine idling regulation. Exceptions in the regulation include vehicles that need to idle as part of their operation, such as concrete mixer trucks. MM 5.6-10: Off-road Gasoline-fueled Equipment Standards. Any off-road stationary and portable gasoline powered equipment brought on site for construction activities shall have USEPA Phase 1/Phase 2 compliant engines, where the specific engine requirement shall be based on the new engine standard in affect two years prior to the commencement of Project construction. In the event that USEPA Phase 1/Phase 2 compliant engines are determined not to be available, the Applicant shall provide documentation to the AVAQMD with an explanation.	

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary			
Project Site	Off-site Transmission	Mitigation Measures	Resulting Level of Significance
The Project would generate diesel fumes (state regulated TAC) during construction; however, due to the Project's temporary generation and buffer of land to the nearest residence, effects would be less than significant. Dust in the Project region is presumed to contain the C. *immitis* fungi, which can cause Valley Fever. The local populace is already exposed to dust likely containing the fungi, and exposure over time increases immunity to Valley Fever. Construction workers not native or living in the area may be more sensitive to contracting Valley Fever and, as a result, the Project would implement MM 5.6-2, MM 5.6-3, and MM 5.6-11 to reduce potential impacts to less than significant. Project operations would not be expected to produce obnoxious odors or hazardous emissions. As a result, impacts would be less than significant.	The Project fugitive dust and diesel emissions resulting from the transmission line construction would be intermittent, and would not pose a significant nuisance or health risk to nearby residences due to the short duration of activity and required implementation of dust control measures. During operation, activities would consist of annual visual inspections and infrequent, if any maintenance services. Operation of the transmission line is anticipated to result in less than significant impacts to cause odors, dust, or hazardous emissions.	MM 5.6-1: Ensure AVAQMD Construction Emission Thresholds would be Met. MM 5.6-2: Develop and Implement Fugitive Dust Emission Control Plan. MM 5.6-3: Dust Plume Response. MM 5.6-11: Off-road Equipment Operator Worker Protection. Appropriate training for respiratory protection shall be provided to construction workers. Dust masks (NIOSH approved) shall be provided with proper training to construction workers to mitigate the protection against dust exposure and possibly Valley Fever during high wind events and/or dust-generating activities.	Less than significant
The Project would comply with the AVAQMD ozone attainment plan and rules and regulations, and would use a	Air emissions from construction and operation of the transmission line would not conflict with or obstruct	MM 5.6-4: Off-Road Diesel-fueled Equipment Standards.	Less than significant

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary		Mitigation Measures	Resulting Level of Significance
Project Site	Off-site Transmission		
contractor utilizing a fleet of compliant non-road engines (MM 5.6-4). As a result, the Project would be consistent with state and local plan requirements, and would not conflict or obstruct implementation of applicable air quality plans. Operation of the Project, including the off-site transmission line, would not conflict with or obstruct implementation of any applicable air quality plan.	implementation of applicable air quality plans (e.g., AVAQMD O_3 attainment plan). As a result, the transmission line would cause less than significant impacts.		
Under typical conditions, the Project would not be expected to exceed ambient air quality standards beyond the site boundaries; however depending on equipment location and certain wind conditions, the Project may cause incidental, short-term exceedance of air quality standards off-site.	Construction emissions associated with the transmission line would be minimal, short-term, and transient, and in itself would not violate any air quality standard. When considered with the overall Project effects (i.e., Project site and transmission line), based on contributions from the Project site alone, the Project may have short-term exceedance of air quality standards during construction (Impact 5.6-3).	MM 5.6-1: Ensure AVAQMD Construction Emission Thresholds Would be Met. MM 5.6-2: Develop and Implement Fugitive Dust Emission Control Plan. MM 5.6-3: Dust Plume Response Requirement. MM 5.6-4: Off-Road Diesel-fueled Equipment Standards. MM 5.6-5: Limit Vehicle and Equipment Use. MM 5.6-6: Heavy Duty Diesel Water Haul Vehicle Standards. MM 5.6-7: On-Road Vehicle Standards. MM 5.6-8: Properly Maintain Mechanical Equipment. MM 5.6-9: Restrict Engine Idling to 5 Minutes. MM 5.6-10: Off-Road Gasoline-fueled Equipment Standards.	Less than significant
The Project would not result in Project-specific or cumulatively significant	Temporary emissions from transmission line construction (as	MM 5.6-1: Ensure AVAQMD Construction Emission Thresholds	Less than

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary		Mitigation Measures	Resulting Level of Significance
Project Site	Off-site Transmission		
impacts to PM_{10} and NO_X emissions during construction with implementation of air quality controls. During operation, the Project would not result in cumulative considerable increases for any criteria pollutant.	considered with the facility site construction) would not result in a cumulatively considerable net increase in PM_{10} or NO_X. Operation of the transmission line would not result in cumulative considerable increases for any criteria pollutant.	Would be Met. MM 5.6-2: Develop and Implement Fugitive Dust Emission Control Plan. MM 5.6-3: Dust Plume Response Requirement. MM 5.6-4: Off-Road Diesel-fueled Equipment Standards. MM 5.6-5: Limit Vehicle and Equipment Use. MM 5.6-6: Heavy Duty Diesel Water Haul Vehicle Equipment Standards. MM 5.6-7: On-Road Vehicle Standards. MM 5.6-8: Properly Maintain Mechanical Equipment. MM 5.6-9: Restrict Engine Idling to 5 Minutes. MM 5.6-10: Off-Road Gasoline-fueled Equipment Standards.	significant
BIOLOGICAL RESOURCES			
The Project construction and operation would result in temporary and permanent removal of habitat, as well as habitat modification resulting from Project-related shading and fuel modification (vegetation management).	The Project transmission line construction and operation would result in temporary and permanent removal of habitat.	MM 5.7-1: Habitat Enhancement and Vegetation Management Plan. Prior to issuance of a grading permit, the Project Applicant shall develop a Habitat Enhancement and Vegetation Management Plan (HEVMP) to compensate for impacts to existing vegetation communities by preserving and enhancing the remaining vegetation within the Project site. The HEVMP shall also provide measures to ensure minimal impacts to habitat along the off-site transmission line. In areas suitable for on-site mitigation, the HEVMP shall identify appropriate mitigation objectives, standards, and monitoring/reporting requirements to enhance habitat such that the resulting habitat values would be greater than those lost as a result of project implementation. These habitat values would include nesting and foraging habitat for	Less than significant

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary			
Project Site	Off-site Transmission	Mitigation Measures	Resulting Level of Significance
		songbirds, foraging habitat for raptors and owls, and high diversity and abundance of native forbs/wildflowers. In areas rendered unsuitable for mitigation due to proposed development, the HEVMP shall identify appropriate restrictions, such as limiting noxious weeds, but shall not impose mitigation standards. The HEVMP shall be prepared by a qualified restoration biologist experienced with desert habitat restoration, and shall specify appropriate revegetation and management practices for the following portions of the Project site to the satisfaction of LACDRP: • Mitigation and Avoidance Areas (refer to Figure 5.7-11 of this DEIR): 1. Drainage A, a 100-foot setback, and the associated wildlife travel route (47.1 acres) 2. Drainage B and a 20-foot buffer (approximately 6 acres) 3. The southernmost portion of the Project site along Drainage C, where no development is proposed (45 acres) 4. The Joshua tree recruitment area (8.6 acres, including buffer) • Areas of Modified/Impacted Habitat (Unsuitable for Mitigation): 1. All portions of the site within the fire breaks (217 acres) 2. All interior portions of the site within the proposed solar arrays, excluding locations of proposed infiltration basins and fire breaks (1,336 acres) 3. All portions of the site to be occupied by proposed infiltration basins (253 acres) In general, for each of the locations enumerated above, the HEVMP	

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary			
Project Site	Off-site Transmission	Mitigation Measures	Resulting Level of Significance
		shall specify, at a minimum, the following (specific details vary depending on location, and are described in the paragraphs that follow): • The location and extent of any on-site enhancement/revegetation areas, to be depicted graphically on an aerial photograph or schematic of appropriate scale • The quantity and species of plants to be seeded (if necessary), including the locations where each type of vegetation would be created • A schedule and action plan to maintain and monitor the enhancement/revegetation areas • A list of success criteria (e.g., growth, plant cover, plant/wildlife diversity) by which to measure success of the enhancement/revegetation effort • Contingency and/or adaptive management measures in the event that enhancement/revegetation efforts are not successful In addition, the standards and practices set forth in the HEVMP for each area shall conform to the requirements stated below: • Within the setback zones surrounding Drainage A, Drainage B, and Drainage C the HEVMP shall provide for 101 acres of on-site mitigation, as well as 6 acres of additional avoidance area (due to its small and isolated nature, the 6-acre area surrounding Drainage B is not included as suitable mitigation land, but would nonetheless be avoided), and shall ensure the following:	

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary			
Project Site	Off-site Transmission	Mitigation Measures	Resulting Level of Significance
		1. Drainages A, B, and C, including adjacent buffer areas shown on Figures 5.7-7 and 5.7-11, as well as the local wildlife travel route associated with Drainage A, shall be set aside, preserved, and enhanced, and no Project-related disturbance shall be permitted in these areas. 2. Any anthropogenic discontinuities in the existing vegetation (unofficial roads, dump sites, etc.) within the ephemeral drainage setbacks shall be remedied, and such areas shall be seeded with native plant species characteristic of the surrounding vegetation. 3. Vegetative cover in herbaceous communities (grasslands, wildflower fields) shall exceed 95 percent; of this, non-native forbs shall not exceed five percent cover. Bare ground shall not exceed five percent excluding bare ground located within the channel bottom of an ephemeral drainage or bare ground where there is clear evidence that the bare ground was the result of mammal activity (burrows, wildlife trails, etc.). 4. Vegetative cover in shrub-dominated communities (desert saltbush scrub, rabbitbrush scrub) shall exceed 90 percent, and shrub cover shall exceed 30 percent. Non-native forbs and shrubs combined shall not exceed five percent cover, and bare ground shall not exceed five percent excluding bare ground located within the channel bottom of an ephemeral drainage or bare ground where there is clear evidence that the bare ground was caused by mammal activity (burrows, wildlife trails, etc.).	

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary			
Project Site	Off-site Transmission	Mitigation Measures	Resulting Level of Significance
		5. In Drainages A and C and the adjacent setback/buffer areas as shown on Figure 5.7-7, vegetation in the area shall remain suitable for foraging by burrowing owls and other grassland bird species. Habitat enhancement/revegetation shall be implemented if necessary to ensure continued suitability. 6. Joshua trees and junipers shall be planted, to improve habitat suitability for sensitive bird species and increase the likelihood that these areas will be occupied by such special-status species as loggerhead shrikes and long-eared owls. • Within the Joshua tree recruitment area, the HEVMP shall provide 8.6 acres of mitigation land, and shall ensure the following: 1. The Joshua tree recruitment area and a 50-foot buffer from the Joshua tree seedlings shall be set aside and preserved, and no Project-related disturbance shall be permitted in this area. 2. Any anthropogenic discontinuities in the existing vegetation (other than the County roadbed of West Avenue C, which passes through this area) shall be remedied, and such areas shall be seeded with native plant species characteristic of the surrounding vegetation. 3. Measures shall be implemented to encourage the continued recruitment of Joshua trees into this area. Such measures may include standards for herbaceous and shrub cover, removal of non-native plants and wildlife, and others. 4. To provide nesting and perching habitat and increase structural diversity within restoration areas, native shrub	

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary			
Project Site	Off-site Transmission	Mitigation Measures	Resulting Level of Significance
		species associated with Joshua tree woodland (including Mojave yucca, sage, box-thorn, and buckwheat, as noted in the County General Plan) shall be included in the planting palette. • Within the proposed fire breaks, no suitable on-site mitigation opportunities exist. However, the HEVMP shall ensure the following: 1. To prevent the potential spread of fire onto the Project site, the proposed fire breaks shall be maintained clear of vegetative cover through mechanical clearing and selective herbicide use. 2. If herbicides are used as approved by LACDRP to control vegetation, they shall be applied by a qualified individual and in a manner consistent with the product labeling. Under no circumstances shall herbicides be allowed to pass into any ephemeral drainage. 3. Under no circumstances shall species identified by the California Invasive Plant Council (Cal-IPC) as invasive weeds be allowed to thrive in the fire breaks. Cover of these species, collectively, shall be maintained at or below five percent. • Within all interior portions of the site within and adjacent to the proposed solar arrays, excluding locations of proposed infiltration basins, no suitable on-site mitigation opportunities would exist. However, the HEVMP shall ensure the following: 1. To control fugitive dust, vegetative cover of grasses and forbs	

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary			
Project Site	Off-site Transmission	Mitigation Measures	Resulting Level of Significance
		within the proposed solar arrays shall be maximized. 2. Vegetation seeded in these areas shall be comprised of low-growing communities such as native grasslands and wildflower fields, to minimize the effects of vegetation management practices on the revegetated areas. Shrub species shall not be used, as these species would be unable to survive continued vegetation trimming. 3. Under no circumstances shall species identified by the Cal-IPC as invasive weeds be used in the revegetation efforts. 4. To promote the growth of local, native plant species, the top 2-6 inches of topsoil removed during Project-related ground clearing shall be stockpiled and spread across disturbance zones after completion of construction in the area. 5. To ensure that a seed supply is maintained to perpetuate on-site vegetation (e.g., annual grasses and wildflowers), vegetation shall be allowed to grow to a maximum height of 18 inches between February 1 and approximately mid-April prior to mowing to a height of 6 inches (or less) by May 1 (through the following January) as required by the LACFD. 6. Herbicides shall be approved for use by the County, and herbicide application shall be performed by trained personnel who can identify the species to be treated. If herbicide is applied, it shall be applied during dry and low wind conditions in order to prevent herbicide drift into non-target areas. • Within the proposed infiltration basins, no suitable on-site mitigation opportunities exist. However, the HEVMP shall ensure	

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary			
Project Site	Off-site Transmission	Mitigation Measures	Resulting Level of Significance
		the following: 1. If herbicides are used as approved by LACDRP to control vegetation (i.e., non-native vegetation), they shall be applied by a qualified individual and in a manner consistent with the product labeling. Under no circumstances shall herbicides be allowed to pass into any ephemeral drainage. 2. Under no circumstances shall species identified by Cal-IPC as invasive weeds be allowed to thrive in the infiltration basins. Cover of these species, collectively, shall be maintained at or below five percent. • Within all portions of the transmission line route to be impacted during installation of transmission line poles and temporary stringing sites, the HEVMP shall ensure the following: 1. Under no circumstances shall ground disturbance occur within 25 feet of an existing Joshua tree. In applicable areas, Joshua tree avoidance zones shall be delineated with high-visibility construction fencing. 2. All areas of temporary ground disturbance shall be revegetated with appropriate plant communities native to the Project region, such as native grasslands, wildflower fields, desert scrub, rabbitbrush scrub, desert saltbush scrub, and Joshua tree woodland. 3. Where impacts would occur in existing agricultural lands outside the Applicant's ownership, it is presumed that agricultural practices would resume after completion of construction. Therefore, revegetation shall not be required in	

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary			
Project Site	Off-site Transmission	Mitigation Measures	Resulting Level of Significance
		these areas. 4. If earthwork is proposed in areas where native vegetation exists, the top 2-6 inches of topsoil removed during Project-related ground clearing shall be stockpiled and spread across disturbance zones after completion of construction in the area. 5. Under no circumstances shall species identified by the Cal-IPC as invasive weeds be used in the revegetation efforts. 6. The HEVMP shall include provisions to minimize the effects of transmission line maintenance on biological resources, including a requirement that no Joshua trees shall be removed during such maintenance. In addition to the location-specific requirements set forth above, the HEVMP shall also ensure that the following standards are met or exceeded within the Project site as a whole: 1. The HEVMP shall identify appropriate locations for creation of rabbitbrush scrub, California annual grassland, and wildflower fields, the three most abundant existing natural communities on-site, within avoided portions of the Project site. In total, 101 acres of on-site mitigation shall be provided. 2. Performance monitoring of the on-site enhancement and revegetation areas shall be monitored approximately quarterly, in January, April, June, and November, and a report detailing the monitoring results shall be submitted to the LACDRP annually. Monitoring and reporting shall be required for a period of five years and until such time as performance standards are achieved. The	

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary			
Project Site	Off-site Transmission	Mitigation Measures	Resulting Level of Significance
		HEVMP shall contain contingency measures identifying corrective actions required in the event that the performance standards are not met. 3. All percent cover standards shall be evaluated during the spring biomass peak. 4. Anti-coagulant rodenticides shall not be used within the Project site or along the proposed transmission line route. The HEVMP shall be submitted to the LACDRP for review and approval prior to issuance of a grading permit. MM 5.7-2: Off-site Mitigation for Loss of Habitat. Within one year of Project approval or prior to the installation of 50 MW of photovoltaic solar panels, the Applicant shall provide a minimum of 450 acres of off-site mitigation land to be restored, enhanced, and maintained according to the requirements of this mitigation measure, and shall be preserved as open space in perpetuity. Within 45 days of acquiring the mitigation land(s), the Applicant shall record a permanent deed restriction on the mitigation land(s) to be preserved as open space. The deed restriction language shall be submitted to LACDRP for review and approval prior to recordation. Alternatively, should a conservation easement on the mitigation land(s) be offered, the permanent conservation easement(s) shall be recorded to the satisfaction of LACDRP. The off-site mitigation land shall not exceed 10 separate fragments and shall be acquired adjacent to existing public lands, or within or adjacent to SEAs within the Antelope Valley or surrounding foothills. At least 225 acres of the mitigation land shall be acquired in the vicinity of the Antelope Valley California Poppy Reserve, including lands in or	

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary			
Project Site	Off-site Transmission	Mitigation Measures	Resulting Level of Significance
		adjacent to SEA #57, or lands connecting the Poppy Reserve to the Angeles National Forest. An additional 75 acres shall be acquired within this same area, or in or adjacent to SEA #60, or adjacent to the Arthur B. Ripley Woodland State Park. The Applicant shall establish a fund sufficient for the restoration, enhancement, and maintenance of the mitigation land(s) until such time when the mitigation land(s) become self-sustained and meet the requirements of this mitigation measure. The fund shall be established within 90 days of mitigation land(s) acquisition in an amount acceptable to the LACDRP. The selected off-site mitigation lands shall contain vegetation communities similar to those found within the Project site, including rabbitbrush scrub, annual grassland, and wildflower fields. Although the proposed Project would not significantly impact Joshua tree woodland habitat, lands containing this vegetation community shall also be considered desirable due to the County's concern over the continuing loss and degradation of Joshua tree woodlands. The selected lands shall comply with the following mitigation requirements: 1. The subject property shall be located within the greater Project vicinity, generally defined to include the Antelope Valley and surrounding foothills. 2. The subject property(s) shall contain a minimum of 450 acres of land, which shall be either comprised of vegetation communities characteristic of the Antelope Valley (rabbitbrush scrub, annual grassland, wildflower fields, and/or Joshua tree woodlands) or be reasonably capable of being enhanced and converted to such	

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary			
Project Site	Off-site Transmission	Mitigation Measures	Resulting Level of Significance
		habitat through the use of maintenance and management practices such that the resulting habitat values would be greater than those lost as a result of Project implementation. 3. The subject property(s) shall either contain a minimum of 224.5 acres of wildflower field, or shall be reasonably capable of being enhanced and converted to this vegetation through maintenance and management practices. 4. The subject property(s) shall provide at least 39 acres of contiguous suitable foraging habitat for the burrowing owl, including presence of suitable burrows. If suitable natural burrows are not present within the subject property, artificial burrows shall be constructed in accordance with California Burrowing Owl Consortium (1993) guidelines. 5. The subject property(s) shall contain a minimum of 450 acres of suitable foraging habitat for grassland/scrubland bird species occurring in the Antelope Valley. 6. The subject property(s) shall contain habitat suitable for the Blainville's horned lizard. Within the mitigation site, suitable locations shall be identified for relocation of horned lizards captured and removed from the Project site pursuant to Mitigation Measure 5.7-7. Generally, it is presumed that the wildflower field areas required by item (3) above will be suitable for this species. 7. Under no circumstances shall species identified by the Cal-IPC as invasive weeds be used in revegetation efforts. 8. The subject property(s) shall be maintained such that non-native forbs shall not exceed 5 percent of the vegetative cover.	

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary			
Project Site	Off-site Transmission	Mitigation Measures	Resulting Level of Significance
		Within 60 days of recordation of the permanent deed restriction(s) or conservation easement(s), a Restoration, Enhancement, and Maintenance Plan for the off-site mitigation land(s) shall be submitted to LACDRP for review and approval. The plan shall include the restoration, enhancement, and maintenance requirements for each mitigation area, based on the characteristics of the mitigation land and the mitigation requirements described above. The Restoration, Enhancement, and Maintenance Plan shall also describe the performance standards for determining when the mitigation requirements for the lands have been met. In addition to meeting the requirements detailed above, the following desirable factors shall also be considered when selecting off-site mitigation property(s): 1. Lands located between blocks of protected habitat are desirable locations for off-site mitigation, as protecting these areas can ensure that essential habitat connections remain in perpetuity. 2. Lands containing Joshua tree woodland habitat are desirable locations for off-site mitigation, due to the continuing loss and degradation of this resource. 3. Lands containing junipers are also desirable locations for off-site mitigation, due to the nesting habitat they may provide for some special-status bird species. 4. Lands containing important landscape features, sensitive habitats, or listed species are desirable locations for off-site mitigation, due to the sensitivity of these resources and the general understanding that such elements are indicative of high biological value.	

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary		Mitigation Measures	Resulting Level of Significance
Project Site	Off-site Transmission		
The Project site does not involve riparian habitats. Four ephemeral drainage courses (as depicted on USGS quad sheets) are located on the site. The Project is designed to avoid the drainages and apply appropriate setbacks from development. As a result, the Project would result in less than significant impacts.	One blue-line drainage along the transmission line route is indicated on USGS quad sheets; however, this map feature was determined to be non-existent during biological field investigations and verification in Spring 2009. No jurisdictional drainages occur along the transmission line route. As a result, the transmission line route would result in no impacts.	No mitigation is proposed or is required.	Less than significant
The Project site contains two sensitive natural vegetation communities, consisting of a wildflower field and Joshua tree recruitment area. Construction and operation of the Project would cause temporary and permanent impacts to a substantial portion of wildflower fields within the Project site. The Project is designed to avoid the on-site 7.3-acre Joshua tree recruitment area, and protect it with a buffer extending 50 feet from the nearest Joshua tree seedlings. Still the area may be impacted by edge effects from	The transmission line route traverses Joshua tree woodland habitat, which is a sensitive natural community. The Project would remove no Joshua trees during construction of the proposed transmission line, and would disturb very small acreages of Joshua tree woodlands. As a result, impacts to this vegetation type along the proposed transmission line route would be less than significant.	MM 5.6-2: (Develop and Implement Fugitive Dust Emission Control Plan). MM 5.7-1: Habitat Enhancement and Vegetation Management Plan. MM 5.7-2: Off-site Mitigation for Loss of Habitat. MM 5.7-3: Biological Restrictions on Dust Suppression. Where construction activities are proposed within 100 feet of mapped Joshua tree woodland vegetation or the Joshua tree recruitment area, a screening fence (i.e., a 6-foot-high chain link fence with green fabric up to a height of 5 feet) shall be installed to protect locations where these sensitive resources may be present to the satisfaction of LACDRP. In addition, dust abatement within 100 feet of these areas shall be achieved by water or by chemical dust suppression if authorized by the County and CDFG.	Less than significant

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary		Mitigation Measures	Resulting Level of Significance
Project Site	Off-site Transmission		
fugitive dust generated during construction activities.			
A mature Joshua tree and two seedlings are located within the site property along 170th Street West. These trees, which are considered unique native trees, would not be removed, but could be subject to edge effects during construction. Such effects may include damage caused by excessive dust from ground disturbance or dust suppression chemicals from fugitive dust control. Physical damage to the trees would not be expected because of the separation distance (more than 50 feet) between these trees from the construction impact zones.	No Joshua trees would be removed along the transmission line, and distance from the edge of the proposed construction zones to the nearest Joshua tree would exceed 30 feet. The potential for trunk damage or root compaction caused by inadvertent contact with construction equipment would be minimal.	MM 5.7-3: Biological Restrictions on Dust Suppression. MM 5.6-2: (Develop and Implement Fugitive Dust Emission Control Plan).	Less than significant
One individual special status reptile, the Blainville's Horned Lizard, was observed in the sandy channel of Drainage C, in the southeastern corner of the Project site. Current range maps for this species suggest that the lizard is not expected to be common on the site, especially north of SR-138. Blainville's horned lizards may be	The permanent alteration to habitat along the transmission line route would be the presence of steel transmission line poles and power lines. Since the small footprint of these structures would not substantially alter the existing habitat, impact to the lizards would be less than significant.	MM 5.7-1: Habitat Enhancement and Vegetation Management Plan. MM 5.7-2: Off-site Mitigation for Loss of Habitat. MM 5.7-5: Biological Monitor. Prior to grading, a qualified biologist shall be retained by the Applicant as the biological monitor subject to the approval of the County of Los Angeles. The biological monitor shall ensure that impacts to biological resources are avoided or minimized to the fullest extent possible. During earth moving activities, the biological monitor shall be present to relocate any vertebrate species that may come into harm's way to undisturbed areas of suitable habitat using	Less than significant

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary			
Project Site	Off-site Transmission	Mitigation Measures	Resulting Level of Significance
potentially injured or killed during construction ground-disturbance activities. Operational impacts include risk of mortality by vehicles and disturbance on access roads from workers. Additionally, the PV panels, similar to the existing onsite shrubs, may provide perching opportunities for ravens, which are known to prey on juvenile and adult Blainville's horned lizards. Project implementation will result in temporary loss of habitat from construction disturbance and permanent loss of habitat due to permanent structures, roads, fuel modification, shading effects, and alteration of food sources.		appropriate methods that would not injure the wildlife. The biological monitor shall have the authority to stop specific grading or construction activities if violations of mitigation measures or any local, state, or federal laws are suspected. MM 5.7-6: Worker Environmental Education Program. A Worker Environmental Education Program shall be developed for construction crews by a qualified biologist(s) provided by the Applicant. Training materials and briefings shall include but not be limited to: discussion of the value and identification of special-status species, including the burrowing owl and desert tortoise, review of sensitive species likely to occur within the construction area, the Migratory Bird Treaty Act and the consequences of non-compliance with this act, a contact person in the event of the discovery of dead or injured wildlife, and a review of mitigation requirements. The training sessions shall be conducted by a qualified biologist or other individual approved by the biologist. Maps showing the location of special-status wildlife or other construction limitations shall be provided to the environmental monitors and construction crews prior to construction activities. As part of the environmental training, contractors and heavy equipment operators shall be provided with photographs or illustrations of expected special-status wildlife species so they will able to identify them, and avoid harming them during construction. MM 5.7-7: Blainville's Horned Lizard Capture and Relocation. Prior to the initiation of ground clearing activities, capture and relocation efforts shall be conducted for the Blainville's horned lizard to the satisfaction of LACDRP. Trapping shall be conducted by a County-approved biologist possessing proper scientific collection and handling	

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary			
Project Site	Off-site Transmission	Mitigation Measures	Resulting Level of Significance
		permits, and shall include the following steps: • Prior to initiating the capture and relocation effort, a suitable receptor location shall be identified to receive relocated horned lizards. The receptor locations shall contain suitable habitat for this species, including open, shrub-dominated vegetation. The 45-acre avoidance area near the southern edge of the Project site likely constitutes a suitable on-site receptor location. • The capture and relocation effort shall take place during the spring season (April through May) preceding commencement of ground disturbance activities, when lizards are at peak activity. All areas proposed for temporary or permanent ground disturbance shall be surveyed for the Blainville's horned lizard. • Surveys shall be conducted by placing coverboards on the ground 4 to 6 weeks in advance of the survey effort, and checking the area under the coverboards for horned lizards on a weekly basis. Coverboards can consist of untreated lumber, sheet metal, corrugated steel, or other flat material. Captured lizards shall be placed immediately into containers containing sand or moist paper towels and released in designated receptor locations no more than three hours after capture. • If the biologist believes there is high potential for previously relocated lizards to return to the impact sites following relocation, silt fence shall be installed to prevent relocated individuals from reoccupying areas proposed for disturbance.	

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary		Mitigation Measures	Resulting Level of Significance
Project Site	Off-site Transmission		
The special-status California burrowing owl was observed to be a resident on the Project site during Burrowing Owl Phase I Surveys (winter 2008-2009). Construction disturbances could potentially interfere or result in owl mortality in the event that activities occur during nesting periods. Development of the site would permanently and substantially alter the habitat such that developed areas would likely be unsuitable for continued use by this species.	Burrowing owl habitat was identified along the transmission line route during Burrowing Owl Phase I Surveys (spring 2009), and while suitable foraging habitat is present, no burrows suitable for burrowing owls were discovered along the route during Phase II burrow searches (spring 2009). Along the proposed transmission line route, the permanent alteration to habitat consists of the presence of steel transmission line poles and conductors. Since the small footprint of these structures would not constitute substantial alteration of burrowing owl habitat, and since burrowing owls have not been shown to use these areas, the transmission line route would be expected to result in less than significant effects to burrowing owls and burrowing owl habitat.	MM 5.6-2: (Develop and Implement Fugitive Dust Emission Control Plan). MM 5.7-3: Biological Restrictions on Dust Suppression. MM 5.7-4: Nesting Bird Surveys Prior to Mowing. Should mowing for vegetation management purposes occur during the nesting/breeding season of native bird species potentially nesting on the site (typically February through August in the Project region, or as determined by a qualified biologist), the Applicant shall have weekly nesting bird surveys conducted. These surveys shall be conducted by a qualified biologist, shall commence within 30 days prior to any mowing, and shall be conducted to determine whether any active nests of special-status bird species, or of any bird species protected by the Migratory Bird Treaty Act or the California Fish and Game Code, are present in the disturbance zone or within 300 feet (500 feet for raptors) of the area to be disturbed. The surveys shall occur on a weekly basis, with the last survey being conducted no more than seven days prior to initiation of mowing activities. If mowing is delayed, then additional surveys shall be conducted such that no more than seven days would have elapsed between the survey and mowing. The Applicant or contractor shall provide the biologist with plans detailing the extent of proposed mowing prior to the survey effort. If active nests are found, mowing within 300 feet (500 feet for raptors) of the nest shall be postponed or halted, at the discretion of the biologist, until the nest is vacated and juveniles have fledged, as determined by the biologist, and there is no evidence of a second attempt at nesting. Limits of mowing to avoid an active nest shall be	Less than significant

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary			
Project Site	Off-site Transmission	Mitigation Measures	Resulting Level of Significance
		established in the field with highly visible construction fencing, and solar plant personnel shall be instructed on the sensitivity of nest areas. The results of the surveys, including graphics showing the locations of any nests detected, and any avoidance measures implemented, shall be submitted to the LACDRP and CDFG within 14 days of completion of the surveys to document compliance with applicable state and federal laws pertaining to the protection of native birds. Nesting bird surveys shall be conducted in each of the first five years after Project development. At the end of this period, the results of the first five years of surveys shall be submitted to the LACDRP and CDFG. After submittal of the first five-year survey results, the County of Los Angeles, under consultation with CDFG, shall determine whether or not the nesting bird surveys shall continue. MM 5.7-6: Biological Monitor. MM 5.7-7: Worker Environmental Education Program. MM 5.7-8: Pre-construction Nesting Bird Surveys. Within 30 days prior to vegetation clearing or ground disturbance associated with construction or grading that would occur during the nesting/breeding season of native bird species potentially nesting on the site (typically February through August in the project region, or as determined by a qualified biologist), the Applicant shall have weekly surveys conducted by a qualified biologist to determine if active nests of special-status bird species, or of any bird species protected by the Migratory Bird Treaty Act or the California Fish and Game Code, are present in the disturbance zone or within 300 feet (500 feet for raptors) of the disturbance zone. The surveys shall occur on a weekly basis, with the	

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary			
Project Site	Off-site Transmission	Mitigation Measures	Resulting Level of Significance
		last survey being conducted no more than seven days prior to initiation of disturbance work. If ground disturbance activities are delayed, then additional pre-disturbance surveys shall be conducted such that no more than seven days will have elapsed between the survey and ground disturbance activities. The Applicant or contractor shall provide the biologist with plans detailing the extent of proposed ground disturbance prior to the survey effort. If active nests are found, clearing and construction within 300 feet of the nest (500 feet for raptors) shall be postponed or halted, until the nest is vacated and juveniles have fledged, as determined by the biologist, and there is no evidence of a second attempt at nesting. Limits of construction to avoid an active nest shall be established in the field with highly visible construction fencing, and construction personnel shall be instructed on the sensitivity of nest areas. Occupied nests adjacent to the construction site shall also be avoided to ensure nesting success. A qualified biologist shall serve as a construction monitor during those periods when construction activities will occur near active nest areas to ensure that no inadvertent impacts on these nests occur. The results of the surveys, including graphics showing the locations of any nests detected, and documentation of any avoidance measures taken, shall be submitted to the LACDRP and CDFG within 14 days of completion of the pre-construction surveys or construction monitoring to document compliance with applicable state and federal laws pertaining to the protection of native birds. MM 5.7-9: Pre-Construction Wintering Burrowing Owl Surveys. If construction or site preparation activities are scheduled during the non-nesting season of the burrowing owl (typically September through	

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary			
Project Site	Off-site Transmission	Mitigation Measures	Resulting Level of Significance
		January), the Applicant shall retain a qualified biologist to conduct wintering burrowing owl surveys within the area to be disturbed. The survey shall be conducted no more than 21 days prior to commencement of construction activities in the area. During the construction period, the results of the surveys, including graphics showing the locations of any active burrows detected and any avoidance measures required, shall be submitted to the LACDRP and CDFG on a monthly basis. If active burrows are detected, the required avoidance measures shall conform to the following: • If burrowing owls are observed using burrows during the non-breeding season, occupied burrows shall be left undisturbed, and no construction activity shall take place within 300 feet of the burrow where feasible (see below). • If disturbance of owls and owl burrows is unavoidable, owls shall be excluded from all active burrows through the use of exclusion devices placed in occupied burrows in accordance with CDFG protocols (CDFG 1995). Specifically, exclusion devices, utilizing one-way doors, shall be installed in the entrance of all active burrows. The devices shall be left in the burrows for at least 48 hours to ensure that all owls have been excluded from the burrows. Each of the burrows shall then be excavated by hand and refilled to prevent reoccupation. Exclusion shall continue until the owls have been successfully excluded from the disturbance area, as determined by a qualified biologist. • If construction activities must be initiated in any area of the site during the burrowing owl breeding season (typically February	

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary			
Project Site	Off-site Transmission	Mitigation Measures	Resulting Level of Significance
		through August), pre-construction surveys for burrowing owls shall be conducted. Any active burrowing owl burrows found at this season shall not be disturbed. Construction activities shall not be conducted within 300 feet of an active burrow at this season. MM 5.7-10: Burrowing Owl Management Plan. Prior to issuance of a grading permit, a habitat management plan for the burrowing owl shall be developed for portions of the site supporting suitable habitat for burrowing owl and away from Project facilities and the solar panel arrays. Specifically, this plan shall be developed for implementation in the undeveloped areas surrounding Drainage A and in the southernmost portion of the Project site, near West Avenue E. At a minimum, the plan shall include the following elements: • If occupied burrows are to be removed, the plan shall contain schematic diagrams of artificial burrow designs and a map of potential artificial burrow locations within Drainage A and Drainage C that would compensate for the burrows removed. • A methodology for the eviction and passive relocation of any owls from the impact area to proactively established artificial burrows. • Provisions for vegetation management, specifying the maximum allowable vegetative cover adjacent to established artificial burrows and the methodology to be used in maintaining the appropriate cover. • Measures prohibiting the use of rodenticides. • The plan shall specify a minimum of 6.5 acres of suitable foraging habitat to be preserved or created through revegetation and	

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary			
Project Site	Off-site Transmission	Mitigation Measures	Resulting Level of Significance
		restoration practices for every active burrowing owl burrow within the Project site. These mitigation areas shall not be located in areas shaded by the proposed solar arrays, and shall not be subject to vegetation mowing or other fuel management practices. Foraging areas shall be located adjacent to suitable natural or artificial burrow locations. The Burrowing Owl Habitat Management Plan may be prepared and presented either as a stand-alone document or as a component of the HEVMP required by Mitigation Measure 5.7 1, and shall be submitted to the LACDRP and CDFG for review and approval prior to issuance of a grading permit for the Project.	
Biological field investigations within the Project site have indicated that several special-status bird species (not counting the burrowing owl) use on-site habitat to fulfill a portion of their ecological requirements. A portion of these species were judged to use the site minimally, and the remaining use the site either as nesting habitat or for foraging or wintering during nesting or special-status season. Construction activities on-site may result in injury or mortality to lark sparrow, loggerhead shrike, and western meadowlark due to disturbance	Biological field investigation indicated presence of special-status bird species. Construction of the transmission line would require minimal ground-disturbance, consisting of temporary and spaced impact zones that comprise minimal acreage. Owing to the minimal acreage to be impacted and spacing of work areas, impacts of special-status bird species along the proposed transmission route would be less than significant.	MM 5.7-1: Habitat Restoration and Vegetation Management Plan. MM 5.7-4: Nesting Bird Surveys Prior to Mowing. MM 5.7-5: Biological Restrictions on Dust Suppression. MM 5.7-6: Biological Monitor. MM 5.7-7: Worker Environmental Education Program. MM 5.7-9: Pre-Construction Nesting Bird Surveys.	Less than significant

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary		Mitigation Measures	Resulting Level of Significance
Project Site	Off-site Transmission		
activities. The proposed removal and modification of on-site habitats would render the majority of the site unsuitable or marginally suitable for use by the special-status species.			
During operation, the Project facility is proposed to include a lighting system at the O&M building, parking area, and main plant access roads, which may potentially affect wildlife entering the affected portions of the site.	The proposed transmission line does not involve lighting installations.	MM 5.7-11 Facility Lighting. Project facility lighting shall be designed to provide the minimum illumination needed to achieve safety and security objectives. All lighting shall be directed downward and shielded to focus illumination on the desired areas only and avoid light trespass into adjacent areas. Lenses and bulbs shall not extend below the shields. The lighting plan shall be submitted to LACDPW for review and approval.	
The desert kit fox maintains no formal sensitivity designation, but take of this species is prohibited by CDFG regulations. If desert kit fox were present on-site during construction, injury or mortality of this species could occur due to construction activities. Long-term, operational effects of the Project would not be considered likely due to the decreased habitat, decreased abundance, and/or altered composition of prey base on-site, and Project maintenance activities. Because	The desert kit fox maintains no formal sensitivity designation, but take of this species is prohibited by CDFG regulations. If desert kit fox were present on-site during construction, injury or mortality of this species could occur due to construction disturbance. Long-term, operational effects of the transmission line would not be considered likely due to the low level of maintenance activities required in the presence of ongoing agricultural activities. Because the desert kit fox is	MM 5.7-12: Desert Kit Fox. To avoid injury or mortality of the desert kit fox, preconstruction surveys shall be conducted for this species concurrent with the pre-construction nesting bird surveys required by Mitigation Measure 5.7-4. A qualified biologist shall perform pre-construction surveys for kit fox dens in the Project site and along the proposed transmission line route, and shall survey all areas where Project facilities, transmission line poles, grading, mowing, equipment access, or other disturbances are proposed. If dens are detected, each den shall be classified as inactive, potentially active, or definitely active. Inactive dens in areas that would be impacted by construction activities shall be excavated by hand and backfilled to prevent reuse by desert kit fox. Active and potentially active dens in areas that would be impacted by construction activities shall be monitored by the biological monitor	Less than significant

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary		Mitigation Measures	Resulting Level of Significance
Project Site	Off-site Transmission		
the desert kit fox is not a special-status taxon, these impacts would be less than significant.	not a special-status taxon, these impacts would be less than significant.	for three consecutive nights using a tracking medium (such as diatomaceous earth or fire clay) and/or infrared camera stations at the entrance. If no tracks are observed in the tracking medium or no photos of the target species are captured after three nights, the den shall be excavated and backfilled by hand to prevent reuse. If tracks are observed, the den shall be progressively blocked with natural materials (rocks, dirt, sticks, and vegetation piled in front of the entrance) for the next three to five nights to discourage the kit fox from continuing to use the den. After verification that the den is unoccupied, it shall then be excavated and backfilled by hand to prevent reuse, while ensuring that no kit fox are trapped in the den. The Applicant shall submit a report to the LACDRP and CDFG within 30 days of completion of the kit fox surveys describing the survey methods, results, and details of any dens backfilled or foxes observed.	
The Project site is not located within an area identified as a large-scale habitat linkage, and movement through the site by terrestrial wildlife is somewhat constrained by the presence of 2 paved roadways, SR-138 and 170th Street West, which bisect the site traveling east-west and north-south, respectively. However, small and medium-sized wildlife are known to move through the site.	Construction of the transmission line would require use of small, isolated patches of disturbance with ample undisturbed habitat between. Construction and operation of the transmission line would not substantially affect the movement of wildlife along the transmission line. Less than significant impacts are expected.	Project fencing is designed to allow passage of wildlife. No mitigation measures are recommended.	Less than significant
The proposed Project design includes			

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary		Mitigation Measures	Resulting Level of Significance
Project Site	Off-site Transmission		
wildlife permeable fencing interspersed with chain-link fencing in order to allow for wildlife movement within and around the site. As a result, impacts to wildlife movement would be less than significant.			
The Project site is not located within an SEA boundary; therefore, the Project would not cause significant direct impacts to SEA resources. Construction of the Project site has the potential for fugitive dust generated during earth-disturbance activities to adversely affect adjacent SEAs. The Project may result in potential facility light spillover into adjacent SEAs.	The transmission line route is not located within an SEA boundary; therefore, the transmission line would not result in significant direct impacts to SEA resources. Earth-disturbance activities associated with construction of the proposed transmission line would generate fugitive dust, which has the potential to adversely affect adjacent SEAs.	MM 5.6-2: (Develop and Implement Fugitive Dust Emission Control Plan). MM 5.7-11: Facility Lighting.	Less than significant
CULTURAL AND PALEONTOLOGICAL RESOURCES			
A Phase I cultural resource survey and literature search was conducted on the Project site, and identified 25 known archaeological sites, 43 isolates, and one historic property. Ground disturbing construction and operation activities have the potential to	A Phase I cultural resource survey and literature search was performed on the transmission line route, and one known archaeological site was identified. Undiscovered cultural resources may exist where ground clearance and	MM 5.8-1: Avoid Archaeological Sites. Archaeological sites within the proposed Project area shall be avoided and protected from future disturbance or evaluated for significance and mitigated, as appropriate, to the satisfaction of the Los Angeles County Department of Regional Planning (LACDRP). MM 5.8-2: Phase II Testing/Phase III Data Recovery. Prior to construction, Phase II testing and evaluation shall be conducted at all	Less than significant

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary		Mitigation Measures	Resulting Level of Significance
Project Site	Off-site Transmission		
disturb, damage, or destroy known archaeological sites.	subsurface disturbance would occur during construction.	unavoidable prehistoric archaeological sites in the proposed Project area to determine their significance under Section 15064.5 of CEQA. Sites determined eligible for the California Register of Historic Resources (CRHR) shall either be avoided and protected from future disturbance, or a Phase III data recovery plan shall be prepared and implemented prior to construction to the satisfaction of LACDRP. All archaeological collections, technical reports and related documentation shall be curated at a curation facility approved by the County of Los Angeles. MM 5.8-3: Archaeological Monitoring. Prior to construction, an archaeological monitoring plan shall be prepared and implemented to the satisfaction of LACDRP. A qualified archaeological monitor shall be present during all ground disturbing activities, including vegetation clearing, grubbing, grading, filling, drilling, and trenching. In the event that any prehistoric or historic cultural resources (chipped or ground stone lithics, animal bone, ashy midden soil, structural remains, historic glass or ceramics, etc.) are discovered during the course of construction, all work in the vicinity shall halt, and the archaeologist shall record the resources on the appropriate California Department of Parks and Recreation (DPR) 523 Series Forms, evaluate the significance of the find, and if significant, determine and implement the appropriate mitigation, including but not limited to Phase III data recovery and associated documentation to the satisfaction of LACDRP. Such activities may result in the preparation of additional Phase II and Phase III technical reports. After ground-disturbing construction activities have been completed, an archaeological construction monitoring report shall be completed and submitted to the LACDRP.	

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary			
Project Site	Off-site Transmission	Mitigation Measures	Resulting Level of Significance
		MM 5.8-4: Native American Monitor. A Native American monitor (Tataviam/Fernadeno Band of Mission Indians) shall be notified prior to construction and allowed the opportunity to be present during all ground disturbing activities, including vegetation clearing, grubbing, grading, filling, drilling, and trenching. In the event that any sacred site or resource is identified, a Native American monitor shall be retained to divert construction activities to another area of the Project site while a proper plan for avoidance or removal is determined to the satisfaction of the LACDRP. MM 5.8-5: Human Remains. In the event human remains are encountered, construction in the area of the finding shall cease, and the remains shall stay in situ pending definition of an appropriate plan. The Los Angeles County Coroner (Coroner) shall be contacted to determine the origin of the remains. In the event the remains are Native American in origin, the NAHC shall be contacted to determine necessary procedures for protection and preservation of the remains, including reburial, as provided in the State of California Environmental Quality Act (CEQA) Guidelines, Section 15064.5(e), "CEQA and Archaeological Resources," CEQA Technical Advisory Series. MM 5.8-7: Construction Worker Training. Prior to construction, the qualified archaeological monitor or qualified designee shall conduct a brief educational workshop such that all construction personnel understand monitoring requirements, roles and responsibilities of the monitors, and penalties for unauthorized artifact collecting or intentional disturbance of archaeological resources. The construction worker training shall include an overview of potential cultural and paleontological resources that could be encountered during ground	

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary		Mitigation Measures	Resulting Level of Significance
Project Site	Off-site Transmission		
		disturbing activities to facilitate worker recognition, avoidance, and subsequent immediate notification to a designated on-site cultural monitor for further evaluation and action, as appropriate.	
No paleontologically sensitive rock formations have been identified in the proposed Project area; therefore no impacts are anticipated. In the unlikely event that paleontological resources are identified during earth disturbance activities, a mitigation measure (MM 5.8-6 Paleontological Resource Protection) has been provided to protect any such resources should they be encountered.	No paleontologically sensitive rock formations have been identified along the proposed transmission line route; therefore no impacts are expected. In the unlikely event that paleontological resources are identified during earth disturbance activities, a mitigation measure (MM 5.8-6 Paleontological Resource Protection) has been identified.	MM 5.8-6: Paleontological Resources Protection. In the event paleontological discoveries are encountered by the cultural monitors, all excavation shall cease in the area of the find and a paleontologist shall be retained, who shall devise a plan for recovery in accordance with standards established by the Society of Vertebrate Paleontology. At least one of the on-site cultural monitors during construction shall have familiarity and expertise in paleontological resources and have the ability to recognize significant vertebrate paleontological resources. Any paleontological resources shall be documented and submitted to the Natural History Museum of Los Angeles County, or any other accredited institution (i.e., San Bernardino County Museum, UCLA Dept of Earth and Space Sciences) that will accept paleontological resources for curation.	Less than significant
No significant standing historic structures or built environment is present on the Project site; therefore, no impacts are anticipated. One historic period property (Larsen Ranch) was identified but was deemed not eligible for listing as a historic resource.	No standing historic structures or built environment existing along the transmission line route; thus, no impacts are expected.	No mitigation is proposed or is required.	Less than significant
Ground disturbing construction activities have the potential to disturb, damage, or destroy significant (as defined by	Ground disturbing construction activities have the potential to disturb, damage, or destroy significant (as	MM 5.8-1: Avoid Archaeological Sites. MM 5.8-2: Phase II Testing/Phase III Data Recovery (Project site).	Less than significant

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary		Mitigation Measures	Resulting Level of Significance
Project Site	Off-site Transmission		
CEQA Guidelines, Section 15064.5) known archaeological sites, and undiscovered archaeological sites could be potentially significantly impacted by ground disturbance. No archaeological sites in the Project area have been evaluated for significance under CEQA guidelines. If significant archaeological sites are avoided and preserved during construction activities, the resources could still be indirectly yet significantly impacted by operational activities.	defined by CEQA Guidelines, Section 15064.5) undiscovered archaeological sites.	MM 5.8-3: Archaeological Monitoring. MM 5.8-4: Native American Monitor. MM 5.8-5: Human Remains. MM 5.8-7. Construction Worker Training.	
A Phase I cultural resource survey and literature search conducted for the Project site did not identify any known human remains. However, the potential exists for buried, undiscovered human remains to become disturbed, damaged, or destroyed during ground disturbance activities.	Similarly, the Phase I cultural resource survey and literature search performed on the transmission line route did not identify any known human remains. However, the potential exists for buried, undiscovered human remains to become disturbed, damaged, or destroyed during ground disturbance activities during transmission line construction.	MM 5.8-5: Human Remains.	Less than significant

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary		Mitigation Measures	Resulting Level of Significance
Project Site	Off-site Transmission		
AGRICULTURAL RESOURCES			
The Project site contains no Unique Farmland or Farmland of Statewide Importance, but is mapped with 10.8 acres of Prime Farmland. However, as this area was last irrigated in 1978 and never cropped, the area does not meet the CDOC definition for Prime Farmland. As a result, the Project site would not be expected to convert Farmland, and impacts are expected to be less than significant.	The transmission line would result in a temporary disturbance of 2.1 acres to Prime Farmland during construction, and a negligible amount of permanent disturbance of 0.83 acre during operation. No Unique Farmland or Farmland of Statewide Importance would be affected by the proposed transmission line. As a result, the transmission line would result in less than significant impact to convert Farmland.	No mitigation is proposed or is required.	Less than significant
The proposed Project would be expected to be compatible with zoning as a "use permitted with a CUP" through the CUP entitlement process. The Project site does not contain Williamson Act contract lands.	The transmission line is a consistent use with zoning along the proposed route, and would not result in a significant impact to agricultural zoning. The proposed transmission line will undergo a consistency analysis through Kern County regarding approximately 5 proposed transmission line poles located on Williamson Act contract land (MM 5.9-1: Transmission Line Williamson Act Review [Kern County]). The transmission line is expected to be a	MM 5.9-1: Transmission Line Williamson Act Review (Kern County). Prior to the construction of the proposed transmission line route within any Williamson Act contracted lands in Kern County, the Applicant shall submit a written site description, along with a plot plan of the proposed transmission line route within the contracted land to the Kern County Planning Department for review and approval.	Less than significant

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary		Mitigation Measures	Resulting Level of Significance
Project Site	Off-site Transmission		
	consistent use, and result in less than significant impacts to Williamson Act contract lands.		
VISUAL QUALITIES			
No designated scenic highway or scenic corridor is located within the Project VSOI. The Project is proposed with setbacks from SR-138 and 170th Street West, landscaping along SR-138, and use of lower profile equipment along SR-138 (i.e., predominant public viewing locations), and would contribute moderate changes to the viewshed and less than significant effects to foreground, middle-ground, and background views. As a result, the Project is expected to cause less than significant impacts to scenic highways, corridors, and viewsheds.	No designated scenic highway or corridor is located within the transmission line VSOI. While introduction of the transmission line is a feature that has the potential to negatively affect the visual environment, the transmission line would not be considered substantially visible, nor would the line obstruct scenic views. As a result, less than significant impacts are expected. While transmission line construction impacts would be considered less than significant, MM 5.10-2 (Construction Housekeeping) is proposed to ameliorate construction effects.	MM 5.10-1: Visual Screening During Construction. Prior to any construction activity within the vicinity of SR-138, temporary screening of construction and staging areas (e.g., via vegetation, or fencing with fabric or slats) shall be installed to minimize visual effects from construction as required by LACDRP. MM 5.10-2: Construction Housekeeping. During construction, the development site shall be maintained. The Project facility construction site and off-site transmission line route work areas shall be kept clean of debris, trash, or waste. MM 5.10-3: Building and Equipment Paint. All proposed on-site structures and appropriate equipment shall be neutral colors and non-reflective, as approved by the LACDRP. MM 5.10-4: Screening Vegetation Landscaping Plan and Maintenance. Prior to issuance of a grading permit, the Applicant shall submit a landscaping plan for the 10-foot-wide strip of Project screening vegetation proposed along both sides of SR-138, to the LACDRP for review and approval. The Plan shall be certified by a registered landscape architect, and shall identify use of temporary irrigation, and the areas on both sides of SR-138 at the Project site to be planted with Joshua trees and/or other native yucca species, and native shrub species, in compliance with the County Drought-Tolerant Landscaping Ordinance. The landscaping shall be installed within 14	Less than significant

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary			
Project Site	Off-site Transmission	Mitigation Measures	Resulting Level of Significance
		months of the commencement of construction activities. The vegetation shall be maintained via selective thinning and removal of invasive weeds and monitored thereafter to promote successful, long-term establishment of the native vegetation to the satisfaction of LACDRP. The landscaped area shall also be maintained free of trash and debris for the Project lifetime to the satisfaction of LACDRP.MM 5.10-5: Maintenance of SR-138 Caltrans and County Easements. The areas on both sides of the existing Caltrans right-of-way for SR-138 offered for dedication in fee simple by the Applicant to Caltrans and the irrevocable 10-foot-wide slope easement on both sides of the 200-foot-wide Caltrans right-of-way offered to the County as described in Section 4.2 of this EIR shall be maintained free of trash and debris on an as-needed basis to the satisfaction of LACDRP. The dedicated area for Caltrans shall be maintained by Applicant until such time the deed for the applicable area is transferred to Caltrans, and the slope easement area for the County shall be maintained by the Applicant until such time that the County installs improvements.	
The Project site is located on private land and would not obstruct views from a regional riding or hiking trail, and no established or proposed trails are present on the site or adjacent to the site. While the Project may be remotely visible from portions of the Antelope Valley California Poppy Reserve and Arthur B. Ripley Desert Woodland Park, the Project would contribute minimal	No regional riding or hiking trails would be affected by the transmission line. The transmission line would not be significantly visible from any local recreational areas.	No mitigation is proposed or is required.	Less than significant

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary		Mitigation Measures	Resulting Level of Significance
Project Site	Off-site Transmission		
views in the middle-ground, and would not dominate perspectives. Visual impacts are anticipated to be less than significant.			
The Project site located in a rural desert area with surrounding agricultural activities, existing infrastructure, and low residential densities, which are characteristic of the adjacent areas and surrounding region. As such, the Project site does not contain unique aesthetic features. Several unique aesthetic features are located nearby, including the Fairmont and Antelope Buttes, Antelope Valley California Poppy Reserve, and Arthur B. Ripley Desert Woodland Park. However, the Project would not significantly affect views of these features. As a result, the Project would result in less than significant impacts.	Aesthetic features of the visual environment are relatively uniform, with agricultural uses, existing infrastructure, low residential densities, and broad, dry, flat landscapes leading to distant mountains, which are characteristic of the surrounding region. There are no unique aesthetic features along the transmission line route, and the proposed transmission line would not block views to distant mountains. Less than significant impacts to unique aesthetic features are expected. While transmission line construction impacts would be considered less than significant, MM 5.10-2 (Construction Housekeeping) is proposed to ameliorate construction effects.	MM 5.10-1. Visual Screening During Construction. MM 5.10-2. Construction Housekeeping.	Less than significant
The Project construction activities would be considered out of character in	Several homes are located along 170th Street West that would have	MM 5.10-1: Visual Screening During Construction. MM 5.10-2: Construction Housekeeping.	Less than significant

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary		Mitigation Measures	Resulting Level of Significance
Project Site	Off-site Transmission		
comparison to adjacent uses, but would be temporary, and would be limited to portions of the site at any one time. During operation, the Project would contribute moderate changes in bulk and height. However, the Project would not involve substantial active operations, and would result in less than significant out of character impacts to foreground, middle-ground, and background views.	immediate views of the proposed transmission line. Although there would be a moderate change to the visual environment in foreground views, viewer exposure would be considered low due to: relatively small number of homes with immediate views of the transmission line features; existing power line and transmission features in the proposed transmission line area; and low number of motorists in the area. Thus, the transmission line is considered to have a less than significant impact. While it is not necessary to mitigate for less than significant level of visual change, MM 5.10-1 (Visual Screening During Construction) and MM 5.10-2 (Construction Housekeeping) are proposed to ameliorate construction impacts.		
Construction activities in this area have the potential to generate short-term impacts to the Project area. Such effects, however, would be temporary and would be expected to result in less	Construction of the off-site transmission line could generate short term glare impacts to visual resources due to use of construction equipment. Potential glint and glare impacts	MM 5.7-11: Facility Lighting. MM 5.10-3: Building and Equipment Paint.	Less than significant

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary		Mitigation Measures	Resulting Level of Significance
Project Site	Off-site Transmission		
than significant impacts to daytime views in the area. In the event that nighttime work is needed, the Project work would be performed using the minimum illumination needed to perform the work safely. All lighting would be directed downward and shielded to focus illumination on the desired work areas only, and to ensure that light does not trespass onto adjacent properties. The Project would not include uses that would produce new sources of substantial light or glare. The PV solar panels are designed to absorb light; the Project would implement Mitigation Measure 5.7-11, Facility Lighting, which would ensure that nighttime lighting would result in insignificant effects. Lighting would be designed to provide the minimum illumination needed to achieve safety and security objectives, and would be directed downward and shielded to focus illumination on the desired areas only, and would be installed to ensure that light does not trespass onto adjacent properties. As a	associated with off-site transmission line construction would be less than significant. The transmission line would not include new sources of substantial light or glare. The poles do not have reflective surfaces, and no nighttime light is proposed. As a result, the transmission line would result in less than significant impacts.		

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary		Mitigation Measures	Resulting Level of Significance
Project Site	Off-site Transmission		
result, the Project would result in less than significant impacts.			
The Project site is not located within a plan-designated scenic vista. The Project vicinity contains several scenic features, but also has substantial areas of agricultural uses, presence of infrastructure, and rural residences. As a result, the Project area is considered to have a moderate level of visual quality. Due to the low to moderate profile of construction and operation equipment and structures, as well as the visual characteristics of the Project, the Project is expected to result in less than significant impacts to this criterion.	The transmission line is not located within a plan-designated scenic vista. Similar to the facility site, the transmission line is located in an area of moderate visual quality. The transmission line construction and operation effects would not dominate views, and in conjunction with a low viewer exposure, would not result in significant impacts to this criterion.	No mitigation is proposed or is required.	Less than significant
TRAFFIC AND ACCESS			
The Project construction and operation traffic was determined to result in less than significant impacts to the study area roadway and intersection LOS, and the Project is not anticipated to require additional turn lanes. Construction of utility crossing of SR-138 and 170th Street West (i.e., 34.5 kV electric line over SR-138; and 34.5 kV	The transmission line construction and operation traffic was determined to result in less than significant impacts. Construction envelope to erect transmission poles may require work on public ROW and/or adjacent private properties. If there is insufficient area to work, construction may encroach beyond roadway	MM 5.11-1: Provide Adequate Worksite Traffic Control. Prior to any construction activities and/or issuance of required encroachment permits from Los Angeles and Kern counties, the Applicant shall prepare worksite traffic control plans for review and approval from the LACDPW and the Kern County Resource Management Agency, Roads Department. The plans shall include: 1) the location and usage of appropriate construction work warning signs that shall be placed in accordance with the California Manual on Uniform Traffic Control Devises (Caltrans 2010); 2) proper merging taper and/or shifting lane	Less than significant

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary		Mitigation Measures	Resulting Level of Significance
Project Site	Off-site Transmission		
lines across 170th Street West from the east side to the proposed on-site substation on the west side) may potentially encroach into the traveled roadway causing short-duration traffic impacts. The proposed water line crossing of SR-138 is expected to not require any traffic control or create delays as sufficient work area exists on the Project site area to perform the subsurface crossing (via jack and bore), and traffic could continue in both directions unimpeded.	shoulders (i.e., into traveled roadway) requiring limited closures of roadway segments in the construction zones.	schematics; and 3) adequate work area and buffer zone designation as well as proper location and conduct of flagmen and the traffic management supervisor at the installation worksite area. The Project worksite traffic control plans shall be coordinated with driver and worker safety in mind. Where the observed speed limit on affected roadways is 55 MPH or more, the plans shall incorporate and implement the following minimum standard requirements per the Work Area Traffic Control Handbook (WATCH): • A Type C flashing arrow pane shall be used for each closed lane. • The minimum height for traffic cones shall be 28 inches. • A minimum of three advance warning signs shall be posted. • Consideration of advanced safety enhancement measures shall be taken into account for workers in the work zones. The above safety and traffic control measures identified in the traffic control plans shall also be implemented at pole installation sites within the public road ROW and/or roadway crossings at a minimum. Additionally, the County, including the LACFD Fire Stations 78, 112, and 140 shall be notified at least three days in advance of any street closures that may affect fire and/or paramedic responses in the area. Applicant shall provide alternate route (detour) plans to the County, including three sets to the LACFD, with a tentative schedule of planned closures, prior to the beginning of construction.	
All equipment, worker, delivery, and on-site vehicles would be contained within designated parking areas during	Vehicles used during transmission line construction would be operated and parked in areas removed from the	No mitigation is proposed or is required.	Less than significant

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary		Mitigation Measures	Resulting Level of Significance
Project Site	Off-site Transmission		
construction and operation. Potential impacts would be less than significant.	roadway. Potential impacts would be short-term and less than significant.		
Based on the existing environment and amount of traffic generated by construction and operation of facilities on the Project site, the Project would not be anticipated to create access issues for emergency vehicles, residents, or employees. Construction of utilities involves crossing SR-138 and 170th Street West (i.e., 34.5 kV electric line over SR-138; and 34.5 kV lines across 170th Street West from the east side to the proposed on-site substation on the west side), which may require work in the public road ROW and result in short-duration traffic impacts. In the event of roadway closures, traffic control measures would be implemented in accordance with MM 5.11-1 to ensure public and work safety.	During installation of transmission poles and lines, emergency access along 170th Street West and residences adjacent to temporary transmission line work zones along 170th Street West could be temporarily impacted (i.e., 1-2 days maximum at any one location). During operation, in the event the transmission line requires maintenance or repair involving equipment and use of the public road ROW, the affected roadways may require temporary closure. In the event of roadway closures, traffic control measures would be implemented in accordance with MM 5.11-1 to ensure public and work safety.	MM 5.11-1: Provide Adequate Worksite Traffic Control.	Less than significant
Based on the Project Traffic Impact Analysis, the Project site construction and operation were determined to result in less than significant impacts to trips	Based on the Project Traffic Impact Analysis, the Project transmission line construction and operation were determined to result in less than	No mitigation is proposed or is required.	Less than significant

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary		Mitigation Measures	Resulting Level of Significance
Project Site	Off-site Transmission		
added onto a mainline freeway link or CMP intersection.	significant impacts to trips added onto a mainline freeway link or CMP intersection.		
Project-related construction equipment traffic could increase wear and tear and/or damage to the existing pavement thereby increasing County maintenance costs for upkeep and repair of 170th Street West. Project impacts are considered to be potentially significant absent mitigation.	Transmission line-related construction equipment traffic could increase wear and tear and/or damage to the existing pavement thereby increasing County maintenance costs for upkeep and repair of 170th Street West. Project impacts are considered to be potentially significant absent mitigation.	MM 5.11-2: Document Pre-and Post-Project Construction Pavement Condition of 170th Street West and Pay Fair Share. Prior to issuance of a grading permit, Applicant shall document and submit all required information and/or material pertaining to the pavement conditions of 170th Street West including the formula for calculating the Project's fair share of any repair and/or reconstruction of 170th Street West to the satisfaction of the LACDPW. Applicant shall reimburse the County of Los Angeles for the cost of any repairs and/or reconstruction of 170th Street West attributable to the Project as agreed to by the LACDPW. The timing of any necessary repairs and/or reconstruction of 170th Street West and the required payment by Applicant shall be determined by LACDPW.	Less than significant
FIRE PROTECTION SERVICES			
The Project would not result in population increases that would cause need for additional LACFD staffing. Construction and operation of the Project site was determined to result in less than significant impacts to traffic. Construction of power lines across SR-138 may potentially encroach into the traveled roadway. As a result, MM 5.11-1 (Provide	The transmission line would not result in population increases that would cause need for additional LACFD or KCFD staffing. Construction of the transmission line along or adjacent to the public ROW of 170th St W may potentially encroach into the traveled roadway. As a result, MM 5.11-1, Provide Adequate Worksite Traffic Control, is	None recommended in addition to 5.11-1 (Provide Adequate Worksite Traffic Control).	Less than significant

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary		Mitigation Measures	Resulting Level of Significance
Project Site	Off-site Transmission		
Adequate Worksite Traffic Control) is proposed to require worksite Traffic Control Plans, permits, and County coordination, such that LACFD access and response times are not significantly affected during construction. As a result, the Project would result in less than significant impacts.	proposed to require worksite Traffic Control Plans, permits, and County coordination, such that LACFD and KCFD access and response times are not significantly affected during construction. Minimal maintenance would be expected during operation, and would not be anticipated to affect response times. As a result, the transmission line would result in less than significant impacts.		
The Project is not located within a special fire problem area nor does the Project involve high fire hazard activities. However, LACFD has expressed concerns regarding on-site vegetation and use of electrical equipment. As a result, MM 5.4-1(Fire Protection and Prevention Plan) has been developed, which will require Project construction and operation fire prevention, protection, and notification planning, and establish standards and practices that will minimize the risk of fire danger.	The transmission line is not located within any special fire problem area, and based on the Project's conformance to federal, state, and local requirements for transmission line fire protection (MM 5.4-1, Fire Protection and Prevention Plan). Construction and operation of the transmission line would be anticipated to result in less than significant special fire problems.	None recommended in addition to MM 5.4-1 (Fire Protection and Prevention Plan).	Less than significant

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary		Mitigation Measures	Resulting Level of Significance
Project Site	Off-site Transmission		
SHERIFF SERVICES			
The Project would not result in population increases that would cause need for additional LASD staffing. Construction and operation of the Project site was determined to result in less than significant impacts to traffic. Construction of power lines across SR-138 may potentially encroach into the traveled roadway. As a result, MM 5.11-1, Provide Adequate Worksite Traffic Control, has been developed to require worksite traffic control plans, permits, and County coordination, such that LASD access and response times are not significantly affected during construction. As a result, the Project would result in less than significant impacts.	The transmission line would not result in population increases that would cause need for additional LASD or KCSO staffing. Construction of the transmission line along 170th Street West may potentially encroach into the traveled roadway. As a result, MM 5.11-1, Provide Adequate Worksite Traffic Control, is proposed to require worksite traffic control plans, permits, and County coordination, such that LASD and KCSO access and response times are not significantly affected during construction. Minimal maintenance would be expected during operation, and would not be anticipated to affect response times. As a result, the transmission line would result in less than significant impacts.	None recommended in addition to MM 5.11-1 (Provide Adequate Worksite Traffic Control).	Less than significant
The Project site is not located within an area of special law enforcement problems, and would also be designed with security measures including access gates and 24-hour security	The transmission line route has not been identified as a special law enforcement problem area. Due to the type of materials used (i.e., 50'-125' poles) and manner of operation (i.e.,	No mitigation is proposed or is required.	Less than significant

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary		Mitigation Measures	Resulting Level of Significance
Project Site	Off-site Transmission		
patrolling. Project is anticipated to result in less than significant effects relating to special law enforcement problems.	live conductors), theft of the transmission line components would not be considered likely. Less than significant effects are expected.		
UTILITY SERVICES			
The Project proposes to use groundwater to supply construction (150 AFY) and operational water (12 AFY) needs, which represent small percentages (0.18 percent during construction and 0.01 percent during operation) of the Basin's total sustainable yield, and no significant impact would be expected to occur. Several property owners and public water suppliers initiated legal proceeding for the Superior Court of California to determine the relative rights of users and potential users of the Basin. It is anticipated that the final judgment in the Adjudication will allocate groundwater to the Project site in an amount sufficient to meet the Project's water demand within the safe yield for the Basin, and no significant impact would occur. In the unlikely	Construction of the off-site transmission line would require use of water for concrete foundations and dust mitigation, which is included in the estimated overall Project water use during construction (150 AFY). Water needs during operation of the transmission line would be minimal if any, since the transmission line is expected to require little to no regular maintenance. The transmission line water needs would be considered less than significant.	No mitigation is proposed or is required.	Less than significant

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary		Mitigation Measures	Resulting Level of Significance
Project Site	Off-site Transmission		
event that it becomes necessary for the Project to supplement its overlying right to pump groundwater or its adjudicated allocation for the Project rights, several reasonably foreseeable alternative water sources have been identified. These include the acquisition of transferable groundwater rights from a landowner and/or public water supplier with transferable groundwater rights; payment for an assessment to the Watermaster to pump groundwater, which would be used to pay for imported water to be injected into the Basin; or from purchasing and trucking water from wholesalers, retailers, or recycled water suppliers. Based on the air and traffic analyses conducted for possible trucking of water, less than significant impacts to air quality and traffic impacts would result. As a result, the Project would result in less than significant impacts related to water supply.			
The Project would maintain and store an estimated 100,000 gallons of fire protection water. The firewater storage	Firewater supplied by Project site groundwater wells (or backup supply) and the 100,000-gallon water tank	No mitigation is proposed or is required.	Less than significant

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary		Mitigation Measures	Resulting Level of Significance
Project Site	Off-site Transmission		
need is a small subset of the Project's overall construction and operation phase water requirements of 150 AFY and 12 AFY, respectively. Adequate firewater pressure will be delivered using an electric pump. Project wells and on-site firewater storage tanks would be expected to provide sufficient capacity and pressure for fire protection needs. As a result, less than significant impacts are expected.	would be available for responding fire truck use on the transmission line, if necessary. As a result, less than significant effects are anticipated.		
The Project would not require utility services for gas or propane. The Project would protect underground utilities in accordance with CA Code Section 4216, and would coordinate electrical needs with SCE. As a result, the Project would result in less than significant effects to utility services.	The Project transmission line would not require utility services for gas or propane. Transmission line construction would be conducted with proper protection of underground utilities, and the interconnection process would be coordinated with SCE. As a result, less than significant effects to utility services are expected.	No mitigation is proposed or is required.	Less than significant
The Project's recycling practices during construction would reduce the amount of solid waste entering landfills, and the Project's overall contribution to solid waste disposal would be expected to be less than significant.	Similar to the Project site, solid waste generated during construction of the transmission line would be recycled in accordance with County requirements. Transmission line operation would be expected to generate negligible	No mitigation is proposed or is required.	Less than significant

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary		Mitigation Measures	Resulting Level of Significance
Project Site	Off-site Transmission		
	quantities of solid waste. As a result, construction and operation of the transmission line would be anticipated to result in less than significant impact to solid waste services.		
The Project would not result in significant impacts to increase population increases that would affect schools and parks. The Project may have potential impacts to SR-138 during power line construction (Potential Impact 5.11-1); however, these impacts are expected to be mitigated through implementation of MM 5.11-1, Provide Adequate Traffic Control. Based on LACFD concerns regarding on-site vegetation and use of electrical equipment, MM 5.4-1 (Fire Protection and Prevention Plan), has been developed, which will minimize risk of fire danger during construction and operation. The Project implementation of these mitigation measures would be expected to result in less than significant effects	Construction and operation of the transmission line would not be expected to cause significant increase in population. Construction along 170th Street West may have the potential to encroach onto the roadway, which is mitigated through implementation of MM 5.11-1 (Provide Adequate Traffic Control). Implementation of MM 5.11-1 pertaining to the transmission line would be expected to result in less than significant effects to roadway level of service and service ratios, and public service response times and performance objectives.	None recommended in addition to MM 5.11-1 (Provide Adequate Traffic Control) and MM 5.4-1 (Fire Protection and Prevention Plan).	Less than significant

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary		Mitigation Measures	Resulting Level of Significance
Project Site	Off-site Transmission		
to roadway level of service and service ratios, and public service response times and performance objectives.			
ENVIRONMENTAL SAFETY			
The Project may result in hazards during the routine transport, use, or disposal of hazardous materials. The Applicant would implement required hazardous material and hazardous waste management plans/program, which include: Hazardous Materials and Hazardous Waste Management Plan, MM 5.3-1 (Erosion Control and Stormwater Management Measures, which include NPDES requirements), and procedures for hazardous materials transportation, equipment fueling and maintenance, and emergency response.	Due to the small amounts of hazardous materials associated with transmission line construction, in conjunction with the Project's required implementation of hazardous materials and hazardous waste management plans, potential impacts would be expected to be less than significant.	None recommended in addition to required implementation of hazardous materials, hazardous waste management-related plans, and MM 5.3-1 (Erosion Control and Stormwater Management Measures).	Less than significant
No residences, schools, or hospitals are located within 500 ft of the Project site. The site contains 2 farm-related residences belonging to the prior landowner, and would be removed as part of the proposed Project. As a result, no impacts to sensitive receptors	No schools or hospitals are located within 500 ft of the transmission line. Several residences are located along 170th Street West within 500 ft of the proposed route. Due to the small amounts of hazardous materials associated with transmission line	None recommended in addition to required implementation of hazardous materials and hazardous waste management-related plans.	Less than significant

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary		Mitigation Measures	Resulting Level of Significance
Project Site	Off-site Transmission		
within 500 ft of the site are expected.	construction, in conjunction with the Project's required implementation of hazardous materials and hazardous waste management plans, potential impacts would be expected to be less than significant.		
The Project site is not identified to be within 2 miles downstream of a known groundwater contamination sources; thus, no impacts from contaminated groundwater are anticipated. The soils in the Project site have the potential to be impacted by hazardous materials associated with past on-site agricultural uses and oil development. Due to less stringent drilling related regulations in the past, the on-site abandoned oil well may potentially need to be re-abandoned in accordance with current safety standards. The Project involves removal of the existing farm residences and related structures that may contain building materials contaminated with hazardous materials, including asbestos and lead.	The transmission line route is not located within 2 miles downstream of a known groundwater contamination source. Soils along the transmission line route are not likely contaminated due to the primarily rural and public road ROW use; however, would have some potential to have been impacted with hazardous materials.	MM 5.15-1: Additional assessment, and possibly remediation, of potentially contaminated soils on the Project site. Prior to the issuance of a grading permit, the Applicant shall obtain a site closure letter from the Los Angeles County Fire Department, Health Hazardous Materials Division. The Applicant shall conduct additional site assessment or remediation activities as required by and to the satisfaction of the Voluntary Oversight Program of the CUPA (Los Angeles County Fire Department, Health Hazardous Materials Division). Additional assessment and/or remediation may include the following: 1) Preparation of applicable Phase II Environmental Site Assessment Work Plans that describe the proposed approach and methods to be used in characterizing shallow soils. The Work Plans shall include the proposed sampling locations, sample collection procedures, analytical methods, quality control measures, and a site-specific health and safety plan. The Phase II ESA(s) shall be submitted to the CUPA for regulatory review and approval. 2) Implementation of the Phase II ESA Work Plan(s) with CUPA oversight. As necessary, Site Remediation Action Plans shall be developed. Upon	Less than significant

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary			
Project Site	Off-site Transmission	Mitigation Measures	Resulting Level of Significance
		CUPA concurrence with the recommendations presented the Phase II ESA(s), remedial action plans shall be prepared for submittal to the CUPA. The remedial action plans shall include the following. 1) Remediation goals and cleanup criteria. 2) Evaluation of corrective action alternatives that compares the effectiveness, feasibility, and cost benefit of each alternative. The remedial action plans shall take into account existing and proposed uses of the Project area. 3) Identification of the preferred alternative with consideration of protection of resources within the Project area. 4) A detailed description of the access points and haul-out routes for remedial activities; remediation methods and procedures; mitigation of dust; minimization or avoidance of disturbance to sensitive ecosystems; and verification soil sampling and analysis. Included in the discussion shall be information on disposal sites, transport and disposal methods, as well as recordkeeping methods for documenting remediation, regulatory compliance, and health and safety programs for on-site workers. MM 5.15-2: A Soil Management Plan for Transmission Line Construction. Prior to issuance of a grading permit, a soil management plan shall be submitted to the CUPA for review and approval. The plan shall include practices that are consistent with the California Title 8, Occupational Safety and Health Administration (Cal-OSHA) regulations, as well as CUPA remediation standards that are protective of the planned use. Appropriately trained construction personnel shall be present during site preparation, grading, and related	

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary			
Project Site	Off-site Transmission	Mitigation Measures	Resulting Level of Significance
		earthwork activities (e.g., augering) to monitor soil conditions encountered. In order to confirm the absence or presence of hazardous substances associated with former land use, a sampling strategy may be implemented. The sampling strategy shall include procedures regarding logging/sampling and laboratory analyses. The Soil Management Plan shall outline guidelines for the following: • Identifying impacted soil • Assessing impacted soil • Soil excavation • Impacted soil storage • Verification sampling • Impacted soil characterization and disposal MM-5.15-3: The historic oil well that requires abandonment or re-abandonment shall be abandoned to current standards. Prior to issuance of a grading permit, an investigation into the location of the historic oil well, reportedly located on the proposed Project site shall be conducted. If the well is determined to be located on the Project site, the well shall be inspected. If the well was not abandoned properly, as determined by the California Division of Oil, Gas, and Geothermal Resources (DOGGR), the well shall be re-abandoned to the satisfaction of DOGGR. The Project development plans shall comply with the required setbacks from oil and gas wells as determined by DOGGR and the County of Los Angeles. MM 5.15-4: Demolition Hazardous Building Materials Assessment	

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary			
Project Site	Off-site Transmission	Mitigation Measures	Resulting Level of Significance
		and Management Plan. Prior to the commencement of any demolition activity on the Project site, the demolition contractor shall prepare a written Demolition Hazardous Building Materials Assessment and Management Program for review and approval by the CUPA, and/or other appropriate regulatory agency. The Demolition Hazardous Building Materials Management Program shall include an assessment for lead-based paint (LBP) and asbestos-containing material (ACM) as identified in the URS pre-demolition survey report (URS 2010), and the following plans shall be prepared: • Lead-based Paint Abatement and Management Plan. A LBP Abatement Plan shall be prepared and implemented by a qualified contractor. Elements of the plan shall include the following: ▪ Containment of all work areas to prohibit off-site migration of paint chip debris. ▪ Removal or encapsulation of all peeling and stratified LBP on building surfaces and on non-building surfaces to the degree necessary to properly complete demolition activities per the recommendations of the survey. The demolition contractor shall properly contain and dispose of intact LBP on all equipment to be cut and/or removed during demolition. ▪ Providing on-site air monitoring during all abatement activities and perimeter monitoring to ensure no contamination of work of adjacent areas. ▪ Cleanup and/or HEPA vacuum paint chips. ▪ Collection, segregation, and profiling waste for disposal determination.	

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary			
Project Site	Off-site Transmission	Mitigation Measures	Resulting Level of Significance
		▪ Post-demolition testing of soil to assure that soil at the site is not contaminated by LBP. ▪ Providing for appropriate disposal of all waste. • Asbestos-containing Materials Abatement and Management Plan. Prior to demolition work that shall disturb identified ACMs, an ACM Abatement and Management Plan shall be prepared. Asbestos abatement shall be conducted during demolition activities, consistent with OSHA and air quality regulations. The Management plan shall include detailed information regarding ACM classification, ACM hazard assessment (the possibility of fiber release from ACM is based on the materials condition, such as friability), ACM inventory information, training and qualification for workers, demolition handling procedures, waste management and disposal procedures, and emergency response procedures (in case of a release of friable materials) licensed asbestos abatement removal contractor shall remove the ACMs under the oversight of a California Certified Asbestos Consultant. All identified ACMs shall be removed and appropriately disposed of by a state-certified asbestos contractor. The proposed Project shall include notification of demolition activities to the Antelope Valley Air Quality Management District.	
Project construction and operation would not involve use of significant quantities of hazardous materials; thus, the Project would not create a significant hazard to the public or	Transmission line construction and operation would not involve use of significant quantities of hazardous materials; hence, would not create a significant hazard to the public or	No mitigation is proposed or is required.	Less than significant

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary		Mitigation Measures	Resulting Level of Significance
Project Site	Off-site Transmission		
environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials.	environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials.		
Construction and operation of the Project site was determined to result in less than significant impacts to traffic, and is expected to result in less than significant impacts to emergency and evacuation routes. Construction of power lines across SR-138 would encroach into the traveled roadways, which has the potential to affect emergency access and evacuation. As a result, MM 5.11-1 (Provide Adequate Traffic Control), has been developed to require worksite traffic control plans, permits, detour plans, and County coordination, such that emergency response and evacuations would not be significantly affected during construction. As a result, the Project would result in less than significant impacts.	Construction of the transmission line along 170th Street West may potentially encroach into the traveled roadway. As a result, MM 5.11-1(Provide Adequate Worksite Traffic Control), is proposed to require worksite traffic control plans, permits, detour plans, and County coordination, such that emergency access and evacuation procedures would not be significantly affected during construction. Minimal maintenance would be expected during operation, and would not be anticipated to affect emergency response and evacuations. As a result, the transmission line would result in less than significant impacts.	None recommended in addition to MM 5.11-1 (Provide Adequate Traffic Control).	Less than significant

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary		Mitigation Measures	Resulting Level of Significance
Project Site	Off-site Transmission		
LAND USE			
The Project site is considered a utility installation, which is considered a consistent use in the Project site's Non-Urban (N-1) land use designation. Thus, the Project would not be considered inconsistent with the plan designation.	The transmission line would be considered a consistent use to land use designations within or adjacent to the public road ROW. Therefore, the transmission line would not be inconsistent with the land use plan designation.	No mitigation is proposed or is required.	Less than significant
The Project is considered an allowable use in the Project site's designated zone with issuance of a conditional use permit. Implementation of the Project as conditioned by the County would be expected to be compatible with the zoning designation, and therefore, result in less than significant impacts to zoning consistency.	The transmission line would be located within or adjacent to the public road ROW, and would be considered a compatible use to the existing zoning designations. Therefore, the transmission line would not be inconsistent with the zoning designation.	No mitigation is proposed or is required.	Less than significant
The Project is not located within an SEA boundary. The Project would implement Mitigation Measures 5.6-2 (Develop and Implement Fugitive Dust Emissions Control Plan), 5.7-11 (Facility Lighting), and 5.18-1 (Pile Driver Orientation), such that the Project would result in less than significant indirect impacts to adjacent	The proposed transmission line is not located within an SEA boundary. The Project would implement Mitigation Measures 5.7-1 (Habitat Enhancement and Vegetation Management Plan) and 5.6-2 (Develop and Implement Fugitive Dust Emissions Control Plan) such that the proposed transmission line would	None recommended in addition to MM 5.7-1 (Habitat Enhancement and Vegetation Management Plan), MM 5.6-2 (Develop and Implement Fugitive Dust Emissions Control Plan), MM 5.7-11 (Facility Lighting), and 5.18-1 (Pile Driver Orientation).	Less than significant

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary		Mitigation Measures	Resulting Level of Significance
Project Site	Off-site Transmission		
SEA areas. As a result, the Project would consistent with SEA criteria.	result in less than significant indirect impacts to adjacent SEA areas. As a result, the proposed transmission line would be consistent with SEA criteria.		
The Project would comply with applicable provisions in the County's Green Building Ordinance. The Project is designed with an objective to conserve resources by producing electricity in a manner that consumes low quantities of fossil fuel and water and, thus, would be considered consistent with the intent of the Green Building Ordinance. Under the Green Building Ordinance, the Project would potentially be required to plant and maintain up to approximately 10,500 trees, which would result in a substantial increase in the Project's water consumption, and would not be considered practical for achieving the intent of the ordinance. As a result, in accordance with the ordinance provisions (Section 22.52.2130.C.5(d) of the County Code), the Project would obtain authorization to modify the tree	The transmission line does not involve buildings that qualify for applicability under the Green Building Ordinance.	Mitigation Measure 5.16-1: Tree Planting Modification. Prior to issuance of a grading permit, the applicant shall obtain authorization to modify the tree planting requirements of the Green Building Ordinance from the Director of Public Works and shall comply with all considerations and other terms of the Green Building Ordinance requirements to the satisfaction of the Director of Public Works (see Sections 22.52.2130.C.5 and Section 22.52.2150 of the County Code).	Less than significant

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary		Mitigation Measures	Resulting Level of Significance
Project Site	Off-site Transmission		
planting requirements of the Green Building Ordinance.			
GLOBAL CLIMATE CHANGE			
The proposed Project is fully consistent with the CARB Scoping Plan to implement AB 32 and its projected implementation measures. Further, the proposed Project is reasonably expected to displace region-wide and statewide emissions of GHGs over the expected 30-year life of the Project.	The transmission line serves the purpose of the Project, and is consistent with the implementation plans for AB 32.	No mitigation is proposed or is required.	Less than significant
NOISE			
The Project is not near an airport, railroad, freeway, or industrial facility, but is traversed by SR-138, which is a 2-lane state highway; however, the Project is not a noise-sensitive use, and would not expose people residing or working in the Project area to excessive long-term noise levels. As a result, impacts would be less than significant.	The transmission line is located in a rural area, and is not near a high noise source. The transmission line is not a noise-sensitive use, and would not expose people residing or working in the Project area to excessive long-term noise levels. As a result, impacts would be less than significant.	No mitigation is proposed or is required.	Less than significant
The Project is not a noise-sensitive use. During pile driving construction activities, the Project would potentially exceed noise standards at nearby	The transmission line is not a noise-sensitive use. Construction and operation of the transmission line would not exceed acceptable noise	MM 5.18-1: Pile Driver Orientation. In order to reduce the noise levels generated by the vibratory pile driver and comply with all applicable Los Angeles County noise standards, the pile driver shall be oriented such that the rear of the pile driver faces toward the noise-sensitive	Less than significant

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary		Mitigation Measures	Resulting Level of Significance
Project Site	Off-site Transmission		
residences in Los Angeles County. Ground-borne vibration caused by pile driving operations were assessed and found to be less than significant. Construction equipment will be equipped with appropriate mufflers and maintained in order to reduce noise emission levels.	levels at the nearest residences (sensitive receptors). Construction equipment will be equipped with appropriate mufflers and maintained in order to reduce noise emission levels.	receptors when the vibratory pile driver is being utilized within 3,000 feet of the receptors. MM 5.18-2: Construction Equipment Use of Mufflers. Construction equipment and vehicles shall be fitted with efficient and well-maintained mufflers to reduce noise emission levels. In addition, the Project construction equipment and vehicles shall be maintained according to the manufacturers' instructions and recommendations.	
Noise levels from construction activities (substation and O&M construction, Drainage A cutoff walls, and solar fields) were evaluated, and all activities complied with ordinances, with the exception of the pile driving scenario for the PV structures. Implementation of Mitigation Measure 5.18-1 (Pile Driver Orientation) would reduce pile driving noise levels to meet Los Angeles County Noise Ordinance Standards. Construction equipment will be equipped with appropriate mufflers and maintained in order to reduce noise emission levels. Operation of the Project facility would have no substantial noise impact to increase ambient noise levels.	Noise levels for construction and operation of the transmission line were evaluated, and were found to be within acceptable noise levels at the nearest residences (sensitive receptors). Construction equipment will be equipped with appropriate mufflers and maintained in order to reduce noise emission levels.	MM 5.18-1: Pile Driver Orientation. MM 5.18-2: Construction Equipment Use of Mufflers.	Les than significant

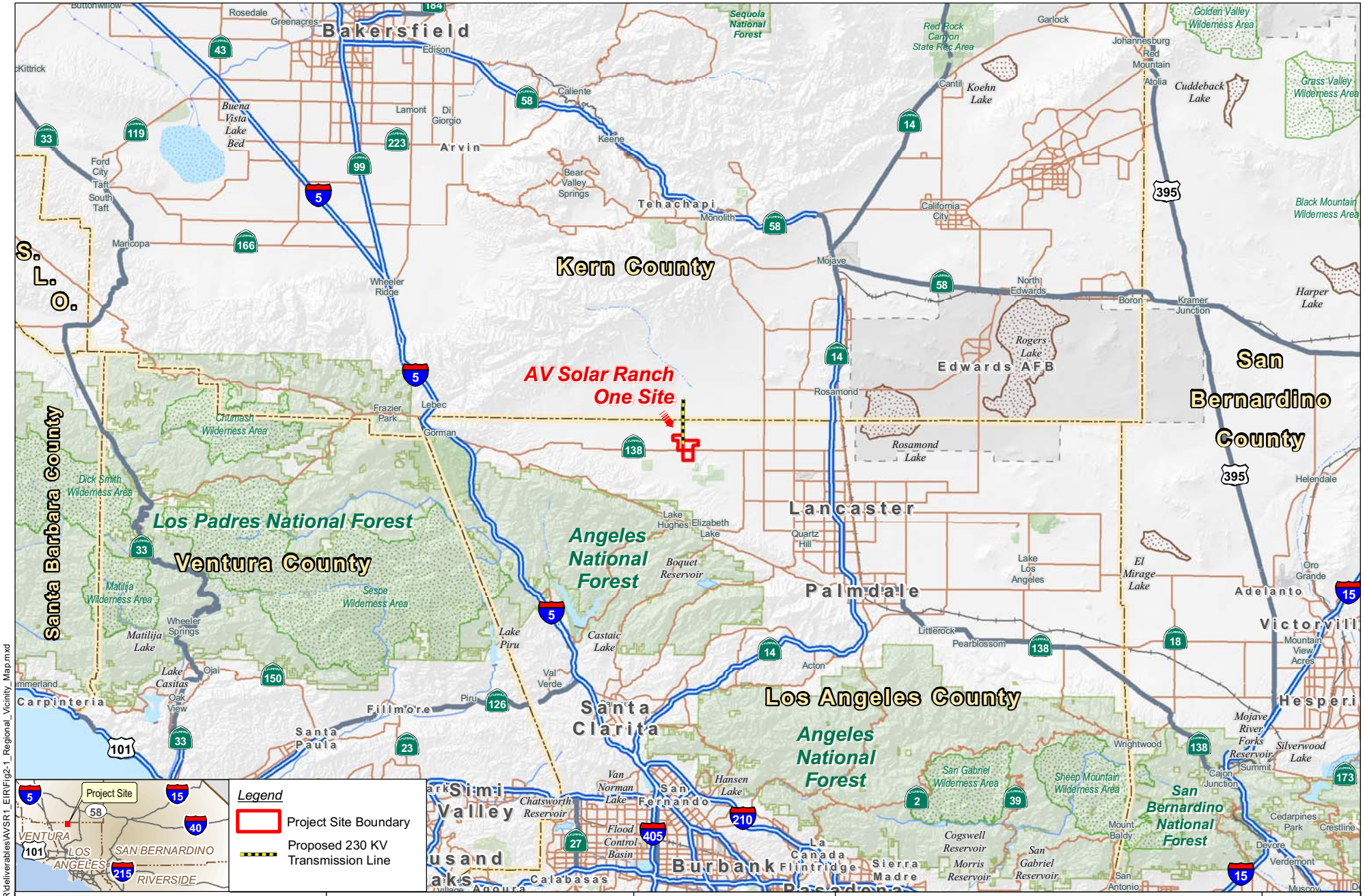
TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary		Mitigation Measures	Resulting Level of Significance
Project Site	Off-site Transmission		
Use of the pile driving option during construction has the potential to result in a temporary/periodic increase in ambient noise levels in the Project vicinity. Construction equipment will be equipped with appropriate mufflers and maintained in order to reduce noise emission levels. Operational noise for the facility would be less than significant.	Construction of the transmission line would generate transient noise impacts, but would occur in accordance with permissible construction work hours, per the noise ordinance. Operational noise for the transmission line would be less than significant.	MM 5.18-1: Pile Driver Orientation. MM 5.18-2: Construction Equipment Use of Mufflers.	Les than significant
CHANGE OF CHARACTER			
The proposed AV Solar One photovoltaic facility would introduce a moderate level of change to the character in the Project area due to the installation of the solar array fields, O&M facility, fencing, substation, and associated electrical and transmission structures; however, the Project would not change the existing land use patterns in the Project area. As a result, the Project would result in an adverse, but less than significant change to character.	The proposed 230-kV transmission line would introduce a moderate level of change to the character in the Project area due to the transmission structures; however, these would not be characterized as urban uses, and would not change the existing land use patterns in the Project area. The proposed transmission line would maintain views of the rural landscape and the distant mountains. As a result, the transmission line would result in an adverse, but less than significant change to character.	No mitigation is proposed or is required.	Less than significant

TABLE 2-1 (CONTINUED)
SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES, AND RESULTING LEVELS OF SIGNIFICANCE

Environmental Impact Summary		Mitigation Measures	Resulting Level of Significance
Project Site	Off-site Transmission		
GROWTH-INDUCING IMPACTS			
The proposed Project involves construction and operation of a solar photovoltaic electric generating facility. The Project does not involve an increase or expansion of public services or removal of major obstacles to growth. Therefore, the Project would not result in growth-inducing impacts.	The proposed 230-kV high-voltage transmission line would be a privately-owned and operated high voltage transmission line. The transmission line does not involve an increase or expansion of public services or removal of major obstacles to growth. Therefore, the Project would not result in growth-inducing impacts.	No mitigation is proposed or is required.	No impact

[1] The proposed Project consists of the approximately 2,100-acre solar facility site and the off-site 230-kV transmission line in northern Los Angeles County and southern Kern County.



Source:
Source: [1] ESRI StreetMap USA (2006). [2] Hillshade, 30 Meter Resolution (based on the National Elevation Dataset (NED) - U.S. Geological Survey, Teale Data Center GIS Solutions Group, USFS Region 5.

AV Solar Ranch One EIR

Figure 2-1. REGIONAL VICINITY MAP

2010

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1.2 ENVIRONMENTAL REVIEW PROCESS

In accordance with the requirements of CEQA (Section 15063), the County of Los Angeles prepared an Initial Study (April 13, 2009) (Appendix A.1) that identified the issues areas requiring analysis in the EIR. Based on the conclusions of the Initial Study, this Draft EIR analyzes the following environmental issues:

- Geotechnical Hazards
- Flood Hazards
- Fire Hazards
- Water Quality
- Air Quality
- Biological Resources
- Cultural and Paleontological Resources
- Visual Qualities
- Traffic and Access
- Fire Protection Services
- Sheriff Services
- Utility Services
- Environmental Safety
- Land Use
- Global Climate Change

While the Initial Study did not identify potentially significant impacts to Agricultural Resources and Noise, these two resource disciplines were also included in the Draft EIR for further assessment of potential impacts. Issues relating to change of character and growth-inducing impacts are discussed in Section 7.0 of this EIR.

In compliance with CEQA Guidelines 15082, the County oversaw the preparation and distribution of the Project Notice of Preparation (NOP), which was circulated on April 29, 2009 to the State Clearinghouse and other public agencies for the required 30-day review and comment period. Additionally, a Scoping Meeting was held on May 14, 2009 in Lancaster (Antelope Acres) to facilitate public review and comment on the Project. The NOP (including the Initial Study), comments received by the County, and Scoping Meeting comments are contained in Appendix A of this Draft EIR.

This Draft EIR was prepared under the direction and supervision of the Los Angeles County Department of Regional Planning (LACDRP), Impact Analysis Section. This Draft EIR has been subjected to a 30-day Los Angeles County departmental review, prior to the required 45-day public review and comment period as mandated by CEQA (Section 15105). During the public review period, written comments concerning the adequacy of the document will be submitted by interested public agencies and members of the public to the County of Los Angeles, Department of Regional Planning, 320 West Temple Street, Los Angeles, California 90012; Attention: Christina Tran.

A public hearing(s) will be held before the Los Angeles County Regional Planning Commission to consider the proposed Project, the requested entitlements and the adequacy of this Draft EIR, at which time public testimony will be received. After the public review comment period, written responses to all written comments and oral testimony pertaining to environmental issues will be prepared as part of the Final EIR. As required by CEQA, responses to comments submitted by responsible public agencies will be distributed to those agencies for review prior to consideration of the Final EIR by the Regional Planning Commission. At the conclusion of the EIR public hearing process, the Regional Planning Commission will vote on whether or not to certify the EIR, adopt findings relative to the project's environmental effects after implementation of mitigation measures, and then take action to recommend outright approval, conditional approval, or denial of the proposed project.

The State Clearinghouse and the Southern California Association of Governments (SCAG) were consulted during the NOP comment period as required for a project that may be regionally significant under Section 15206(b) of the State CEQA Guidelines. The May 28, 2009, NOP comment letter received from SCAG stated that their staff determined that "the proposed project is regionally significant per CEQA Guidelines, Sections 15125 and/or 15206." This EIR addresses SCAG's applicable policies for a regionally significant project.

1.3 ORGANIZATION OF THE DRAFT ENVIRONMENTAL IMPACT REPORT

The balance of this Draft EIR is organized as follows:

- Section 2.0 (Executive Summary): This section provides a summary of the Project Description, Alternatives to the proposed Project, environmental impacts, and mitigation measures.
- Section 3.0 (General Description of Environmental Setting): This section provides a general overview of the Project location and setting, including the physical environment, applicable local and regional plans, and related projects.

SECTION 3.0
GENERAL DESCRIPTION OF ENVIRONMENTAL SETTING

3.1 PROJECT LOCATION AND SETTING

3.1.1 Project Location

The proposed AV Solar Ranch One (Project) site is located in the Antelope Valley, in unincorporated Los Angeles County, approximately 15 miles northwest of downtown Lancaster. The Project site can be accessed from Interstate 5 (I-5) or State Route 14 (SR-14) via SR-138 (West Avenue D) from the west and east, respectively (refer to Figure 4.3-1). The property consists of approximately 2,100 acres, and is located within Sections 11, 13, 14, and 24 in Township 8 North, Range 15 West, and within Section 18 in Township 8 North, Range 14 West (San Bernardino Base and Meridian). This site occupies an area both north and south of SR-138, and is approximately bounded on the north by West Avenue B-8, on the south by West Avenue E, on the east by 155th Street West and on the west by 180th Street West (refer to Figure 4.3-2). Most of the Project site is undeveloped or had been used for agricultural production since at least the 1950s, and includes a residential ranch area. The Project site is located in an area with desirable solar radiation characteristics, flat terrain, and close proximity to existing electrical transmission facilities.

The area surrounding the Project site is similar to the site itself and generally consists of agricultural or undeveloped land with occasional residential or farm-related structures. The closest residences in the general vicinity of the Project site (none closer than approximately 0.4 mile) are shown on Figure 3-1. The two existing ranch residences on the Project site are located near the intersection of 160th Street West and SR-138 and would be removed as part of the proposed Project.

Fairmont Butte is located approximately 0.5 mile from the southeast corner of the property, and the Antelope Valley Poppy Reserve (Poppy Reserve) is located approximately 1.5 miles to the southeast. Santa Monica Mountains Conservancy land is located approximately 0.5 to 1 mile to the southeast, and includes a portion of Fairmont Butte. The Arthur B. Ripley Desert Woodland State Park is located approximately 2.5 miles to the southwest, and the Joshua Tree Woodland Habitat (JTWH) Significant Ecological Area (SEA) #60 is adjacent to the Project on the north and northeast. The Fairmont-Antelope Buttes SEA #57 is located approximately 850 feet from the Project site property boundary to the southeast (refer to Figure 3-2).

The proposed 230-kilovolt (kV) transmission line consists of an approximately 3.5-mile-long off-site segment and a 0.75-mile-long on-site segment. The total transmission line length is approximately 4.25 miles. The off-site portion of the transmission line is proposed to run

along the east side of the public road right-of-way (ROW) of 170th Street West in Los Angeles County. The portion of the proposed transmission line route in Kern County is proposed to be constructed on private lands adjacent to 170th Street West and within the public road ROW to interconnect to Southern California Edison's (SCE) planned Whirlwind Substation north of the Project site in southern Kern County (refer to Figures 4.3-4A and 4.3-4B). The northern portion of the proposed transmission line route (approximately 2 miles) is located in southern Kern County and generally consists of agricultural land within the Willow Springs Specific Plan area. The portion of the proposed transmission line route in Kern County is adjacent to or within the Antelope Valley Water Bank Project area located immediately east of 170th Street West.

3.1.2 Physical Environment

An aerial photograph of the Project area is presented on Figure 4.3-3 (Site Location Aerial Map). The proposed Project site is currently undeveloped with the exception of existing roads and two ranch residences and associated structures located south of SR-138. These structures would be removed as part of the proposed Project.

The following sections summarize existing conditions in the Project site region. Refer to the Section 5.0 (Environmental Impact Analysis) "environmental setting" sections for more detailed descriptions.

3.1.2.1 Geology and Soils

The proposed Project site and off-site 230-kV transmission line route lie within the Antelope Valley. The Antelope Valley is bound by the Transverse Ranges/San Gabriel Mountains to the south and southwest and the Tehachapi Mountains to the northwest. The Project site is relatively flat (ranging from approximately 1 to 2 percent gradient), sloping gently downward to the northeast from approximately 2,720 to 2,600 feet above mean sea level. The topography and slope are similar along the off-site portion of the transmission line route.

The proposed Project is situated within the westernmost portion of the Mojave Desert Geomorphic Province in Southern California. Geologic structures within the Mojave Desert primarily consist of isolated mountain ranges separated by vast expanses of desert plains. The Antelope Valley is a large, undrained topographic basin characterized by relatively flat lying topography and extensive valley fill deposits. In the Project area, these deposits consist primarily of Quaternary alluvium (Qal) over most of the Project area, with Pleistocene non-marine (Qc) deposits to the southeast. Scattered buttes resulting from Miocene-age extrusive rocks form the only topographic break across the central portion of the valley. The Fairmont Butte, located to the southeast of the Project site, is underlain by volcanic rock, and the adjacent Antelope Butte to the east is underlain by granitic rock. The principal bounding faults of the western Antelope Valley include the San Andreas Fault located approximately

6.1 miles to the southwest, and the Garlock Fault located approximately 16 miles to the northwest.

The soils in the Project area consist primarily of the Hanford-Greenfield association. In general, the soils consist of fine to coarse grained sandy loams and loamy sands that are well drained with moderately rapid subsoil permeability. These soils are rated as having moderate susceptibility to water and wind erosion.

3.1.2.2 Hydrology

The proposed Project is located in the Antelope Valley Hydrologic Unit. This Unit receives runoff from Big Rock and Little Rock Creeks from the San Gabriel Mountains and from Oak Creek and Cottonwood Creek in the Tehachapi Mountains. The surface water drains toward the closed basin of Rosamond Lake within the boundaries of Edwards Air Force Base, which is located approximately 15 miles east of the Project site.

The Project site is traversed by three primary ephemeral drainages (Drainages A, B, and C), as shown on Figure 3-3. A fourth ephemeral drainage (Drainage D) is located at the northeastern property boundary and only a small portion of the southern bank of the drainage is on the Project site. The proposed Project site is subject to flooding under the design storm event (50-year capital flood).

The proposed Project site is located in the Lancaster subunit of the Antelope Valley Groundwater Basin. The Basin is located within the South Lahontan Hydrologic Region and is designated as Basin Number 6-44. The Antelope Valley Groundwater Basin underlies an extensive alluvial valley in the western Mojave Desert with elevations ranging from 2,300 to 3,500 feet above sea level. The Basin is bounded on the north and northwest by the Garlock Fault at the base of the Tehachapi Mountains and on the south and southwest by the San Andreas Fault at the base of the Transverse Ranges, including the San Gabriel Mountains.

The primary water-bearing materials are Pleistocene and Holocene age alluvial and lacustrine deposits consisting of compact gravels, sand, silt, and clay. Coarse alluvial deposits form the two main aquifers, the principal unconfined upper aquifer and a secondary semi-confined lower aquifer. The main source of recharge to the Lancaster subunit is streamflow from the Big and Little Rock Creeks draining from the San Gabriel Mountains.

3.1.2.3 Air Quality

The proposed Project is located in the Mojave Desert Air Basin (MDAB) which covers more than 20,000 square miles, encompasses the majority of California's high desert, and exhibits typical hot, dry summers and cold winters with little precipitation. The Project site is under the regulatory jurisdiction of the Antelope Valley Air Quality Management District. The

northern portion of the proposed off-site transmission line is in Kern County which is under the jurisdiction of the Kern County Air Pollution Control District.

A substantial amount of fugitive dust (i.e., particulate matter) is generated during high wind conditions in this relatively flat desert environment. Air quality in the MDAB is also heavily influenced by airborne pollutants transported into the region from areas within the South Coast Air Basin under the jurisdiction of the South Coast Air Quality Management District. Particulate matter and ozone are pollutants of particular concern in the Project region.

3.1.2.4 Biological Resources

The Project is located within the Mojave Desert geographical region, which is a unique vegetation region. Six natural vegetation communities occur on the Project site, and/or along the proposed transmission line route. These natural vegetation communities include rabbitbrush scrub, California annual grassland, Joshua tree woodland (off-site transmission line only), Joshua tree recruitment area, wildflower field, and desert saltbush scrub. In addition, five disturbed or human-converted vegetation communities occur on the Project site and/or the proposed transmission line route. These communities include orchard, agricultural, ruderal, rubber rabbitbrush scrub/ruderal, and ornamental vegetation. In addition to the habitat provided by on-site vegetation communities, the on-site drainages also provide habitat and travel routes for wildlife species. Wildlife use of the on-site drainages was apparent during field surveys in 2008 and 2009, where the presence of numerous small- to large-sized burrows (including lizard, rodent, coyote, and burrowing owl) were observed within the banks, as well as abundant animal tracks within the channels.

No threatened or endangered species are known to be present on the proposed Project site or off-site transmission line route based on detailed biological surveys conducted in 2008 and 2009. The biological surveys identified a total of 20 special-status species and three sensitive natural communities, including a total of 15 special-status wildlife species on the Project site, and an additional four species along the proposed transmission line route. The surveys did not detect the presence of any special-status plants. Special-status wildlife species detected included one reptile and 19 bird species. Of the 19 special-status birds, six were detected during a season other than which they are assigned special status, or were judged to be migrants. Refer to Section 5.7 for more information.

3.1.2.5 Utilities and Public Services

The Project site and surrounding environs are largely an undeveloped and agricultural area, with limited utility services. Electricity is available along SR-138 and to the north of the site. Public domestic water and sewer service are not currently provided at the Project site. Currently, the Project site contains one domestic well that supplies the existing ranch residence and one agricultural well formerly used for irrigation. The Project area is within the

boundary of the Antelope Valley Groundwater Basin. Several property owners and public water suppliers initiated legal proceeding asking the Superior Court of California to determine the relative rights of users and potential users of the Antelope Valley Groundwater Basin (1-05-CV-049053: Antelope Valley Groundwater Cases, Consolidated Proceeding 4408). A final judgment in the Adjudication is expected to determine all groundwater pumping rights in the Basin and will likely result in the appointment of a Watermaster for the Basin. It is expected that any potential restrictions on groundwater pumping from the Antelope Valley Groundwater Basin will be determined in the Adjudication.

Multiple regional landfills with remaining capacity provide solid waste services to the Project area. The closest of these is the Lancaster Landfill and Recycling Center, which has a remaining capacity of 13.81 million tons, and the landfill is in the process of expanding its facilities to accommodate an additional 8.96 million tons of capacity[1]. Refer to Section 5.14 for more information.

The Project site and the portion of the off-site transmission line in Los Angeles County are located within the Los Angeles County Fire Department (LACFD) Battalion 11 service area. The closest station is Station 78, which is located approximately 6 miles south of the Project site. The portion of the transmission line in Kern County is located within the Kern County Fire Department service area and is located in closest proximity to Rosamond Station 15, which is located approximately 14 miles to the northeast of the transmission line route.

The Los Angeles County Sheriff Department Field Operations Region 1 provides law enforcement services to the Project area in Los Angeles County. The nearest patrol station to the Project site is Lancaster Station, which is approximately 20 miles from the Project site. In Kern County, the Project transmission line is located within the Kern County Sheriff Office service boundaries, and the nearest station, Rosamond Substation, is approximately 15 miles east of the transmission line route.

3.2 APPLICABLE LOCAL AND REGIONAL PLANS

The proposed Project is subject to multiple local and regional plans and policies. The key plans and policies guiding development of the proposed Project are summarized below. Refer to EIR Section 5.16 (Land Use) for more information including an assessment of Project consistency with the following plans and pertinent policies. Other applicable plans and policies are discussed in the environmental assessments presented for each resource topic in Section 5.0 (Environmental Impact Analysis) in the "regulatory setting" sections.

[1] County of Los Angeles Department of Public Works. 2009. Los Angeles County Countywide Integrated Waste Management Plan: 2007 Annual Report. May 2009.

3.2.1 County of Los Angeles General Plan

On November 25, 1980, the County of Los Angeles Board of Supervisors adopted the County of Los Angeles General Plan, which provides decision-makers with a policy framework to guide specific, incremental decision so as to move toward achievement of the Plan's stated goals, objectives, and policies. The General Plan elements have since been amended, and the existing Goals and Policies of the General Plan are current as of January 1993. The General Plan includes development of land use policies and land use maps to guide future development of Los Angeles County. The County is currently undergoing a General Plan Update Program, and released a Draft General Plan in 2008.

The AV Solar Ranch One Project is located within the area covered by the Antelope Valley Areawide General Plan of the Los Angeles County General Plan.

3.2.1.1 Antelope Valley Areawide General Plan

The Antelope Valley Areawide General Plan provides a coordinated statement of public policy that is intended to guide public decisions relating to the future of the Antelope Valley, including the Project site area. The Areawide General Plan was adopted on December 4, 1986, and is currently undergoing an update program. As part of this program, LACDRP released the Antelope Valley Area Plan Update Background Report on April 1, 2009, which provides an assessment of existing conditions in the Antelope Valley.

3.2.2 County of Los Angeles Zoning Ordinance

Development of the Project site is regulated by the County of Los Angeles zoning ordinance (Title 22). This ordinance contains the regulatory framework that specifies: allowable uses for real property and development intensities; technical standards such as site layout, building setbacks, heights, lot coverage, parking, etc.; aesthetics related to physical appearance, landscaping and lighting; a program that implements policies of the General Plan; and the procedural standards for amending or establishing new zoning regulations, including Conditional Use Permits for certain uses that have been deemed to require an additional level of review prior to permitting.

3.2.3 Green Building Ordinance

As an amendment to Title 12 – Environmental Protection, Title 21 – Subdivisions, and Title 22 – Planning and Zoning of the Los Angeles County Code, the Green Building Ordinance was adopted on November 18, 2008, and applies to development projects constructed after January 1, 2009. The Green Building Ordinance establishes Low Impact Development (LID), Drought-Tolerant Landscaping, and Green Building Standards.

3.2.4 County of Kern General Plan

The Kern County Board of Supervisors originally adopted the Kern County General Plan on June 15, 2004, and subsequently amended the General Plan to its current date of March 13, 2007. The Kern County General Plan provides long-range guidance for physical development of the unincorporated Kern County jurisdiction, excluding the metropolitan Bakersfield planning area. The General Plan identifies the community's physical development goals relating to environmental, economic, and other factors; incorporates policies for maintaining or improving character of existing developed uses; provides consideration of local conditions affecting physical development and change to ensure that problems are analyzed within the context of local, regional, statewide, and national goals and policies; and provides information to citizens of the community about the planning and decision-making process of the local government.

The 2-mile-long portion of the proposed off-site transmission line in Kern County is within the Willow Springs Specific Plan Area which has land use policies specific to the transmission line route.

3.2.4.1 Willow Springs Specific Plan

The Willow Springs Specific Plan forms an integral part of the Kern County General Plan Land Use, Open Space and Conservation Element. The Specific Plan goals, policies, and standards are compatible with the General Plan, but are tailored to the particular needs of the expanded Willow Springs area. The original Willow Springs Specific Plan was adopted on September 8, 1986, and was amended most recently on April 1, 2008.

3.2.5 Southern California Association of Governments

The Southern California Association of Governments (SCAG) is responsible for most regional planning in Southern California (Ventura, Los Angeles, Riverside, San Bernardino, Orange, and Imperial counties). SCAG has been preparing long-range growth and development plans for the SCAG region since the early 1970s. SCAG documents provide a framework to coordinate local and regional decisions regarding future growth and development. An important component of this process is the preparation of growth forecasts at intervals ranging from three to five years.

SCAG developed a Regional Comprehensive Plan (RCP) in 2008 that recommends methods by which local governments can redirect regional growth to minimize traffic congestion and better protect environmental quality. While SCAG has no authority to mandate implementation of the RCP, the Plan's goals have implications upon the land use composition of cities within Los Angeles County.

SCAG's Regional Transportation Plan (RTP) is a long-range (minimum 20-year) plan that provides a blueprint for future transportation improvements and investments based on specific transportation goals, objectives, policies, and strategies. The RTP is based on Federal transportation law requiring comprehensive, cooperative, and continuous transportation planning. SCAG meets these requirements by developing comprehensive transportation plans that include all surface transportation modes (multi-modal planning), to ensure efficient people and goods movements throughout the region.

SCAG has a criteria list for classifying projects of "regional significance." Regionally significant SCAG projects relate to the policies and strategies contained in the Regional Comprehensive Plan and Guide (RCPG) and the RTP. SCAG Criteria 14 (Public Services/Utilities), which pertains to "new or expanded electrical generating facilities and transmission lines," classifies the proposed Project as "regionally significant."

3.3 RELATED PROJECTS

The proposed Project includes a 3.5-mile-long off-site 230-kV transmission line to interconnect the electricity produced by the Project to SCE's planned Whirlwind Substation in southern Kern County north of the Project site. The planned Whirlwind Substation is part of SCE's proposed Tehachapi Renewable Transmission Project (TRTP), which is planned by SCE and the California Public Utilities Commission (CPUC) to interconnect substantial new renewable energy generation from the Tehachapi area. AV Solar Ranch 1, LLC (Applicant) has a Power Purchase Agreement with Pacific Gas and Electric Company (PG&E) to interconnect at SCE's planned Whirlwind Substation. SCE's TRTP was approved by the CPUC on December 17, 2009 and is currently undergoing review by the U.S. Forest Service. Assuming the TRTP is approved, construction is scheduled to begin in 2010 and construction of the Whirlwind Substation and other related SCE TRTP transmission components (e.g., Segment 4 connecting Whirlwind to SCE's existing Antelope Substation) are currently planned to be completed in 2011. The proposed Project is planned to begin generating electricity and delivering it to the electrical grid via the Whirlwind Substation in the third quarter of 2011 (or when the Whirlwind Substation is available, if later). As construction progresses for the proposed Project (8 to 10 megawatts [MW] of additional generation per month is planned), the amount of electricity delivered to the electrical grid via the Whirlwind Substation would increase up to approximately 230 MW when the proposed Project is planned to be completed at the end of 2013.

The proposed Project is not related to, or interdependent on, any other identified projects.

There are multiple other proposed projects and developments that are in the permitting stage in the general Project region. Refer to Section 4.6 (Cumulative Projects List) of this EIR for

more information on the SCE TRTP as well as other proposed projects and developments in the general Project area.

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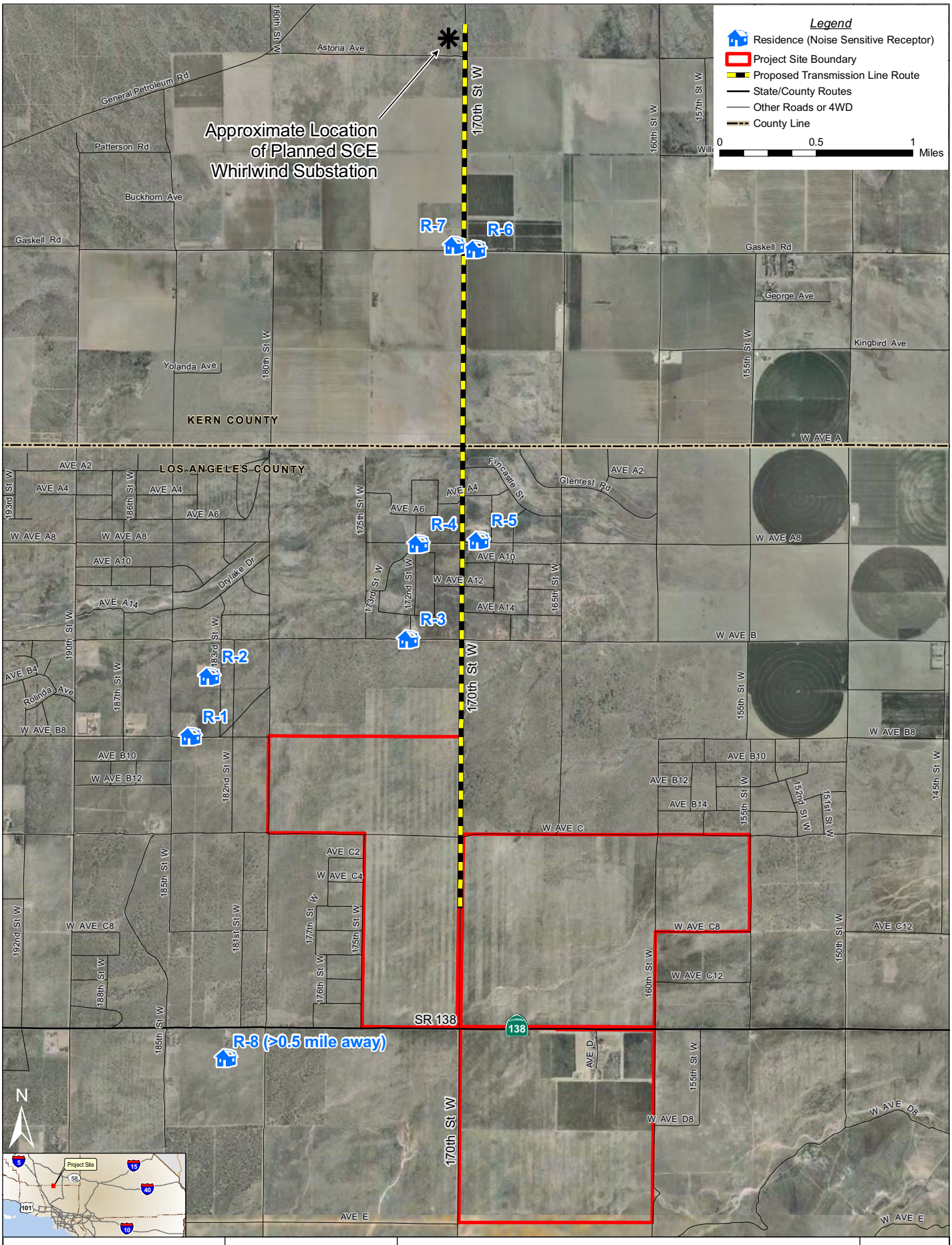

Source:
[1] I-cubed Nationwide Prime - Aerials Express (2007-02-15 image date, 0.3m resolution), [2] ESRI StreetMap USA (2007), [3] URS Corporation.

AV Solar Ranch One EIR

Figure 3-1. AV SOLAR RANCH ONE NEARBY RESIDENCES

2010

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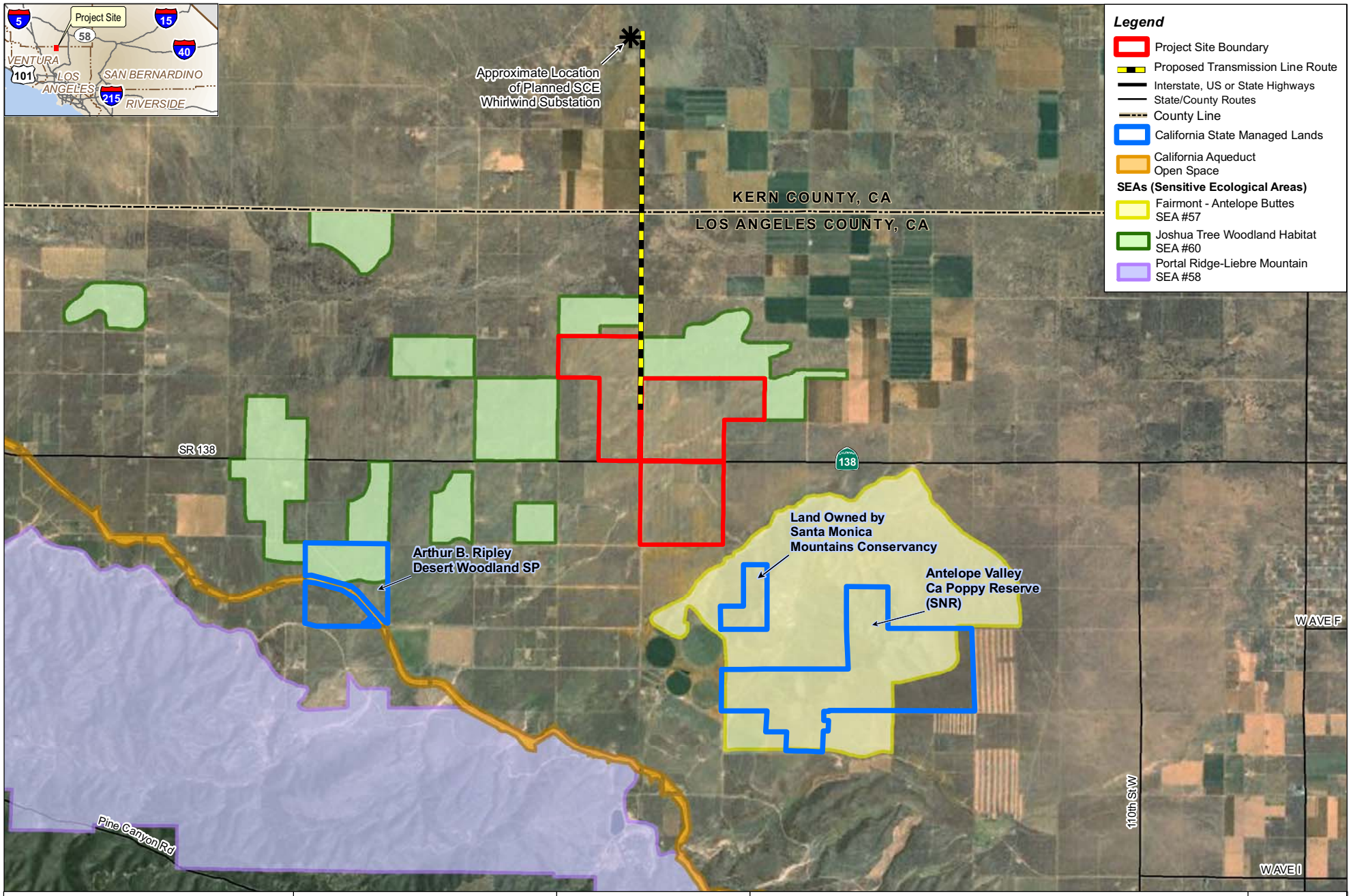
Project Site
5
15
58
40
101
VENTURA
LOS ANGELES
SAN BERNARDINO
215
RIVERSIDE
Approximate Location of Planned SCE Whirlwind Substation
KERN COUNTY, CA
LOS ANGELES COUNTY, CA
SR 138
138
Land Owned by Santa Monica Mountains Conservancy
Arthur B. Ripley Desert Woodland SP
Antelope Valley Ca Poppy Reserve (SNR)
Pine Canyon Rd
110th St W
W AVE F
W AVE I
Legend
Project Site Boundary
Proposed Transmission Line Route
Interstate, US or State Highways
State/County Routes
County Line
California State Managed Lands
California Aqueduct Open Space
SEAs (Sensitive Ecological Areas)
Fairmont - Antelope Buttes SEA #57
Joshua Tree Woodland Habitat SEA #60
Portal Ridge-Liebre Mountain SEA #58
N
1:100,000
0 0.5 1 1.5 2 Miles
Source:
[1] I-cubed Nationwide Prime - Aerials Express (2007-02-15 image date, 0.3m resolution), [3] LA County General Plan(1986), [4] Antelope Valley Area Wide General Plan (1986), Accessed February 2009: http://planning.lacounty.gov/gis/data.
AV Solar Ranch One EIR
Figure 3-2. PROJECT SITE VICINITY MAP
2010
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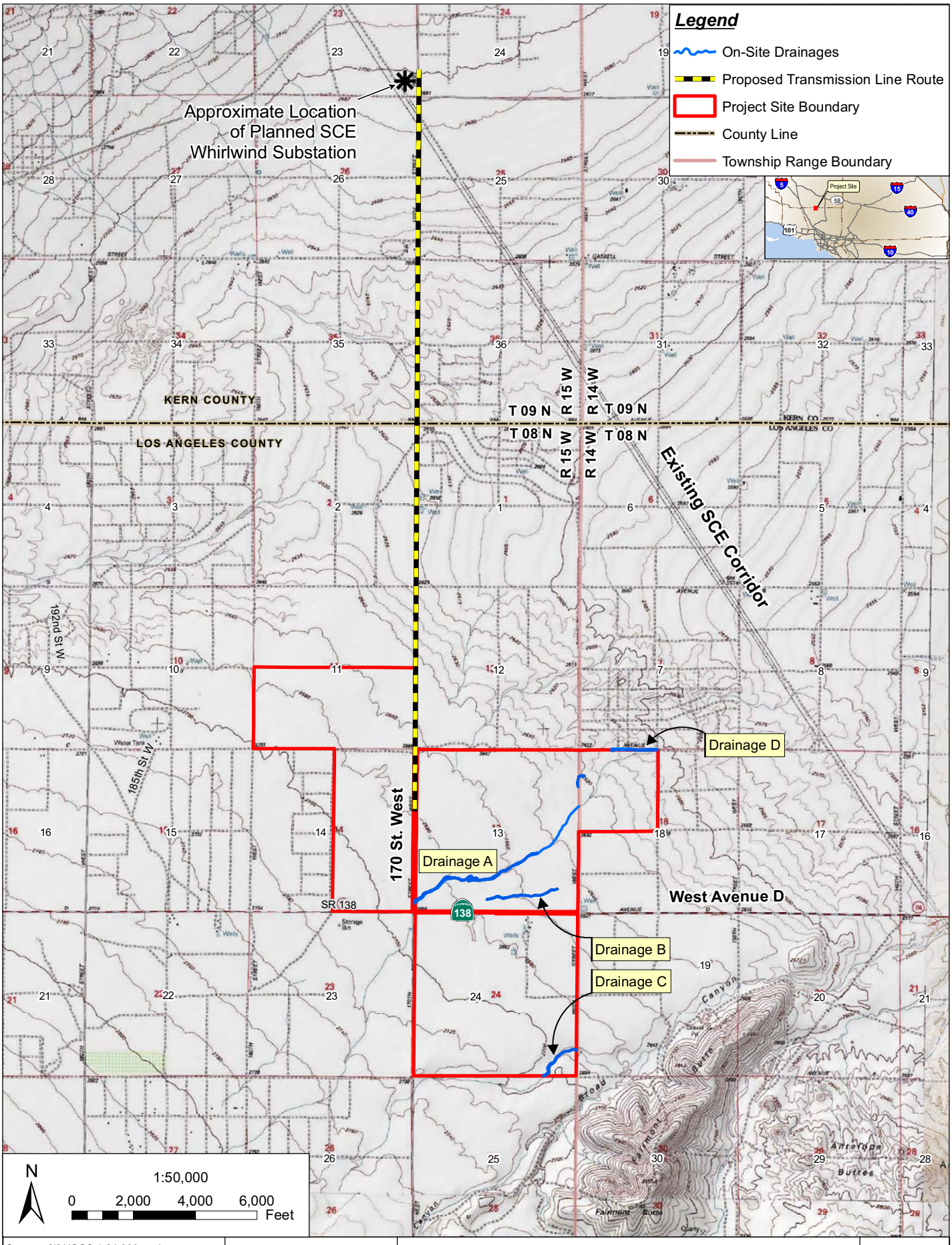

T:\NextLight_AV_EIR\deliverables\AVSR1_EIR\Fig3-3_Site Location_Topo_Map_&_On-Site_Drainages.mxd

Source: [1] USGS 1:24,000-scale topographic map created with TOPO!, (c)2001 National Geographic Maps, All Rights Reserved, [2] CA Geospatial Information Library - PLSS (1997), [3] USGS NHD Flowline (2007), [4] URS Corporation (2009).

AV Solar Ranch One EIR

Figure 3-3. SITE LOCATION TOPOGRAPHIC MAP AND ON-SITE DRAINAGES

2010

SECTION 5.0
ENVIRONMENTAL IMPACT ANALYSIS

5.1 INTRODUCTION AND IMPACTS FOUND TO BE LESS THAN SIGNIFICANT

5.1.1 Introduction

Sections 5.2 through 5.18 of this Draft EIR present analyses (by environmental impact category) of the potential environmental effects that could result from implementation of the proposed AV Solar Ranch One Project (Project). This section also presents mitigation measures, where appropriate, to avoid or minimize potential environmental effects associated with the Project. The environmental topics (or impact categories) analyzed in detail in this EIR are:

- 5.2 – Geotechnical Hazards
- 5.3 – Flood Hazards
- 5.4 – Fire Hazards
- 5.5 – Water Quality
- 5.6 – Air Quality
- 5.7 – Biological Resources
- 5.8 – Cultural and Paleontological Resources
- 5.9 – Agricultural Resources
- 5.10 – Visual Qualities
- 5.11 – Traffic and Access
- 5.12 – Fire Protection Services
- 5.13 – Sheriff Services
- 5.14 – Utility Services
- 5.15 – Environmental Safety
- 5.16 – Land Use
- 5.17 – Global Climate Change
- 5.18 – Noise

Each environmental topic section analyzed in this EIR is organized in the following manner: regulatory setting, environmental setting, project impacts, cumulative impacts, mitigation

measures, and the expected level of significance after mitigation is applied. The methodology and threshold criteria that were used to determine impact significance are also specified for each environmental impact category.

5.1.2 Impacts Found to be Less Than Significant

In addition to the environmental topics analyzed in detail in this EIR, the County of Los Angeles has determined through the preparation of an Initial Study (dated April 13, 2009) that the development and operation of the proposed Project would not result in potentially significant impacts to the environmental concerns listed below. Therefore, no further review of these issues is necessary. Refer to Section 7.3 for a summary of significant unavoidable impacts, as applicable.

The following discussions of the pertinent Initial Study impacts and are provided in accordance with CEQA Guidelines Section 15128, which states: "An EIR shall contain a statement briefly indicating the reasons that various possible significant effects of a project were determined not to be significant and were therefore not discussed in detail in the EIR."

5.1.2.1 Mineral Resources

Economically recoverable mineral resources are not known to exist on the Project site. The CEQA Initial Study determined the proposed Project does not have the potential to result in the loss of availability of a known mineral resource of value to the region and residents of the state. Additionally, the Initial Study determined that the Project does not have the potential to result in the loss of availability of a locally important mineral resources discovery site delineated in a local general plan, specific plan, or other land use plan.

5.1.2.2 Sewage Disposal

The CEQA Initial Study determined the proposed Project is not in an area served by a community sewage system and thus would not create a capacity problem in sewer lines or at a treatment plant. The Project's sanitary disposal needs would be met with a new, on-site septic system designed and built to County standards.

5.1.2.3 Education

The proposed Project does not involve residential development. The CEQA Initial Study determined the proposed Project does not have the potential to create capacity problems at the school district level or at individual schools, and that the Project would not create student transportation problems. Additionally, it was determined that the Project would not result in substantial library impacts due to increased population and demand by the Project operational workforce of only approximately 16 persons.

5.1.2.4 Recreation

The proposed Project does not involve residential development and would not create new demand for recreational resources in the Project region. The CEQA Initial Study determined the proposed Project does not have the potential to require new or expanded recreational facilities for future residents since the Project is intended to generate renewable, solar energy with a long-term operational workforce of only approximately 16 persons.

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SECTION 4.0
PROJECT DESCRIPTION

4.1 OBJECTIVES

4.1.1 Introduction

The project description is the basis for all environmental analyses required by the California Environmental Quality Act (CEQA). The purpose of the project description is to describe the project in a way that will be meaningful to the public, reviewing agencies, and decision makers. The California CEQA Guidelines (Section 15124) state that the project description need not be exhaustive and should not supply extensive detail beyond that needed for evaluation and review of potential environmental impacts. The guidelines require that a project description address the following items: 1) the precise location and boundaries of the project; 2) a statement of the project objectives; 3) a general description of the project's characteristics; and 4) a statement briefly describing the intended uses of the EIR, inclusive of the specific project approvals. The following project description serves as the basis for the technical/environmental analyses contained in this document.

4.1.2 Project Purpose and Objectives

The primary purpose of the proposed AV Solar Ranch One Project (Project) is to generate approximately 230 megawatts (MW) of clean, renewable electrical power utilizing solar photovoltaic (PV) technology and to integrate the electrical output of the Project into the electrical grid. The electricity produced by the proposed Project will be sold via a Power Purchase Agreement that will provide a set and secure rate of financial return for the Project.

The Applicant has identified the following objectives for meeting the proposed Project's purpose:

- ***Develop a solar project designed to help meet the increasing demand for clean, renewable electrical power.*** The multiple benefits associated with developing this resource have been recognized by both federal and state policy makers. Development of solar resources reduces reliance on foreign sources of fuel, promotes national security, diversifies energy portfolios, contributes to the reduction of greenhouse gas emissions, and generates "green" jobs. The Project will contribute on-peak power to the electrical grid in California.
- ***Develop a solar project that will help California meet its statutory and regulatory goal of increasing renewable power generation.*** California has enacted legislation mandating that certain load serving entities (LSEs) procure enough renewable power to ensure that 20 percent of their retail sales are served by renewable resources by 2010, and is

currently considering legislation (Senate Bill [SB] 14; Assembly Bill [AB] 64) that would increase the goal to 33 percent renewables by 2020. The California Air Resources Board has already adopted this requirement as part of its implementation of AB 32 (which addresses reductions in Greenhouse Gases [GHG]), and the Governor has directed State agencies to implement policies requiring LSEs to achieve 33 percent renewables by 2020 (Executive Order S-14-08, November 17, 2008). The Project is an eligible renewable resource within the meaning of the California Public Resources Code, and will help the State meet its current and planned goals for increasing renewable generation.

- ***Locate the project facilities in an area that optimizes desirable solar project characteristics with minimum potential for environmental effects.*** A key objective of the Applicant was to locate the PV facility in an area with the following characteristics: 1) adequate solar radiation; 2) close proximity to a high capacity 230-kilovolt (kV) substation with adequate transmission capacity to convey the electrical output of the Project without requiring downstream upgrades to the transmission grid; 3) lack of threatened and/or endangered biological species on the site; 4) relatively flat site that has been previously disturbed to minimize disturbance to native habitat and to minimize the need for site grading; 5) existing access to accommodate construction workforce needs; 6) lack of nearby sensitive receptors or land uses to minimize potential conflicts with Project development; 7) landowner that controls and is willing to sell a large enough parcel of land at market price (approximately 2,000 acres minimum) to accommodate a 230-MW PV facility; and 8) access to nearby workforce to minimize traffic and socioeconomic impacts.
- ***Locate the transmission line in an area that optimizes connection to the electrical grid with minimum potential for environmental effect and land use conflicts.*** Another key objective of the Applicant was to locate the PV facility and the off-site 230-kV transmission line in an area such that: 1) the length of the transmission line interconnection to the electrical grid is less than 5 miles to minimize transmission line losses and costs; 2) necessary transmission line right-of-way (ROW) can be acquired; 3) lack of threatened and/or endangered biological species along the transmission line route; and 4) locate the transmission line route near other linear facilities such as roads and pipelines to minimize new disturbance and potential conflicts with adjacent land uses.
- ***Develop a project that utilizes a reliable and proven solar technology with minimal use of natural resources.*** The final key Project objective is to utilize a proven PV panel and equipment design in order ensure that the facility will operate as planned in a reliable manner over the life of the Project in order to meet the primary purpose of the Project (i.e., to generate approximately 230 MW of clean, renewable electrical power and to maximize the 250-MW interconnection request with the California Independent System Operator [CAISO]). An inherent characteristic of PV-based solar generation versus typical solar thermal generation technology is the substantially reduced water needs for

PV and the lack of need for heat transfer fluids and natural gas for maintenance of fluid temperature at night.

4.2 DISCRETIONARY ACTIONS

The following discretionary actions have been requested to be approved by Los Angeles County: 1) a Tentative Tract Map for a portion of the Project site for a reversion to acreage from 147 parcels to 1 parcel; 2) Conditional Use Permit No. RCUPT200900026 for the construction and operation of an approximately 230-MW solar photovoltaic facility in an agricultural zone, for on-site grading (cut and fill) of up to approximately 180,000 cubic yards of soil; and 3) any other necessary discretionary or ministerial permits or approvals as may be required for the construction of the proposed Project.

In addition, subsequent to County approval of these entitlements, the following agency approvals may be required:

- Los Angeles County Department of Public Works: Approval for placement of electrical transmission line poles in County road ROWs through a License or Franchise agreement from the County Department of Public Works or the County Chief Executive Office; Encroachment Permit(s) for accessing County roads and road utility crossings
- Kern County Planning Department: Encroachment Permit for transmission line crossings of County road ROW and/or linear encroachments along 170th Street West
- California Department of Transportation: Encroachment Permit for utility crossing of SR-138 (West Avenue D); Oversized Load Permits
- Regional Water Quality Control Board – Lahontan Region: State Water Resources Control Board coverage under the General Permit for storm water discharge during construction
- Antelope Valley Air Quality Management District: Authority to Construct and Permit to Operate for installation and operation of an emergency diesel firewater pump

It is noted that the California Energy Commission (CEC) and California Public Utilities Commission (CPUC) have no jurisdiction over the Project. The CEC only has jurisdiction over concentrating solar (thermal electric) facilities over 50 MW; they do not have jurisdiction over PV projects.

As required by Los Angeles County and consistent with the Caltrans Project Study Report for State Route 138 (SR-138) between Interstate 5 (I-5) and State Route 14 (SR-14), dated March 23, 2009, and County roadway width requirements, a dedication in fee simple shall be offered by the Applicant to Caltrans of additional land on both sides of the existing Caltrans right-of-way, from 160th Street West to 170th Street West, to provide a total right-of-way

width of 100 feet on both sides of the centerline of SR-138, or as otherwise required by Caltrans, for a total right-of-way width of 200 feet. From 170th Street West to 175th Street West, a dedication in simple fee shall be offered of additional land north of the Caltrans right-of-way of SR-138 for a total right-of-way width of 100 feet north of centerline of SR-138, or as otherwise required by Caltrans up to a total SR-138 right-of-way width of 200 feet. The dedicated area shall be maintained by Applicant until such time the deed for the applicable area is transferred to Caltrans. Additionally, an irrevocable 10-foot-wide slope easement on both sides of the 200-foot-wide Caltrans right-of-way, from 160th Street West to 170th Street West, and on the north side of the Caltrans easement from 170th Street West to 175th Street West, shall be offered to the County. The location of this easement shall be determined once Caltrans identifies the location of the 200-foot-wide easement. The slope easement shall be maintained by the Applicant until such time that the County installs improvements.

The majority of the required permit applications for the Project would be obtained following certification of the EIR, which will be considered by the County of Los Angeles Department of Regional Planning as Lead Agency. The County of Los Angeles has the greatest responsibility for review and approval of the Project as a whole.

4.3 PROJECT LOCATION AND BOUNDARIES

4.3.1 Project Site

The proposed Project site is located in the Antelope Valley, in unincorporated Los Angeles County, approximately 15 miles northwest of downtown Lancaster. The Project site can be accessed from I-5 or SR-14 via SR-138 (West Avenue D) from the west and east, respectively (refer to Figure 4.3-1). The property consists of approximately 2,100 acres, and is located within Sections 11, 13, 14, and 24 in Township 8 North, Range 15 West, and within Section 18 in Township 8 North, Range 14 West (San Bernardino Base and Meridian). This site occupies an area both north and south of SR-138, and is approximately bounded on the north by West Avenue B-8, on the south by West Avenue E, on the east by 155th Street West and on the west by 180th Street West (refer to Figures 4.3-2 and 4.3-3). The Project site had been used for agricultural production since at least the 1950s, but the most recent agricultural activity was in 2004. The site includes a residential ranch area that will be removed as part of the solar field construction. The Project site is located in an area with suitable solar radiation characteristics, flat terrain, and close proximity to existing electrical transmission facilities.

The proposed Project site originally overlapped a small portion (a 20-acre portion) of the existing Joshua Tree Woodland Habitat (JTWH) Significant Ecological Area (SEA) (SEA

#60)[1], as defined by the 1986 update to the Los Angeles County General Plan (as implemented by adoption of the Area Plan, December 2, 1986). Field surveys in 2009 determined that this southern extent of SEA #60 contains no Joshua trees and does not constitute Joshua tree woodland habitat. This area was removed from the Project by the applicant to avoid all SEAs. No portion of the site, or the 20-acres within the SEA that was removed from the site, retains the characteristics of Joshua tree woodland habitat. The County is currently considering revising SEA boundaries in the site vicinity as part of the General Plan Update Program, to more accurately reflect existing JTWH. The revision, as provided in the draft General Plan documents (LACDRP 2008) circulated for public review, indicate that the 20-acre portion that is now removed from the Project site would be removed from the current SEA designation.

A Joshua tree recruitment area is located along the northern property boundary of the site (see Figure 4.4-1A) that consists of a 7.3-acre area with a relatively low density of Joshua tree seedlings (an average of 6.8 per acre). The vegetation in this area is dominated by species found within the rabbitbrush scrub habitat type; thus, it is not considered true Joshua tree woodland habitat. As shown on Figure 4.4-1A, this area will be avoided by the Project, and the avoidance area will include a buffer of approximately 50 feet from the nearest juvenile Joshua trees to the Project perimeter fencing.

The area surrounding the Project site is similar to the site itself and generally consists of agricultural or undeveloped land with occasional residential or farm-related structures. Fairmont Butte is near the southeast corner of the property, and the Antelope Valley Poppy Reserve (Poppy Reserve) is located approximately 1.5 miles to the southeast. Land owned by the Santa Monica Mountains Conservancy is located approximately 0.5 mile southeast of the Project site, and includes a portion of Fairmont Butte. Arthur B. Ripley Desert Woodland State Park is located approximately 2.5 miles to the southwest, and SEA #60 is adjacent to the Project on the north and northeast. The Fairmont-Antelope Butte SEA #57 is located approximately 850 feet to the southeast of the Project property.

4.3.2 230-kV Transmission Line

The proposed 230-kV transmission line consists of an approximately 3.5-mile-long off-site segment and a 0.75-mile-long on-site segment. The total transmission line length is approximately 4.25 miles, and is proposed to run along the public ROW of 170th Street West and adjacent private property to interconnect to Southern California Edison's (SCE) planned Whirlwind Substation north of the Project site in southern Kern County (refer to Figure 4.3-2). The northern portion of the proposed transmission line route (approximately 2 miles) is

[1] The Joshua tree woodland habitat (JTWH) SEA (SEA#60) comprises nine discontinuous fragments in the Project region.

located in southern Kern County and generally consists of agricultural land within the Willow Springs Specific Plan area.

The proposed route for the 230-kV transmission line is shown in detail on Figures 4.3-4A and 4.3-4B, including tentative pole locations, pole access paths, and temporary construction disturbance areas. The off-site portion of the transmission line route in Los Angeles County is planned to be located in the public road ROW along the east side of 170th Street West. The northern portion of the transmission line route in Kern County is planned to be located on private lands adjacent to the west and east sides of 170th Street West and within the public road ROW of 170th Street West. The EIR study area for the transmission line route in Kern County has been expanded to allow for potential route refinements anywhere within the study area, which includes the public road ROW and 200 feet or wider areas on the west and east sides of 170th Street West as shown on Figures 4.3-4A and 4.3-4B. With the exception of road crossings, Kern County has indicated a preference that the transmission line not be within the County road ROW for the portion of the route south of Astoria Avenue. Kern County approval will be required for any linear portion of the transmission line in the road ROW in Kern County. Additionally, the northern approximately 0.75 mile of the transmission line route in Kern County, from the existing SCE corridor north to the planned Whirlwind Substation, may need to be refined prior to construction to meet forthcoming SCE and/or Kern County requirements for renewable energy electrical interconnections to SCE's planned Whirlwind Substation as well as specific crossing requirements for SCE's existing transmission corridor southeast of the planned Whirlwind Substation.

The 230-kV transmission line begins on-site at the proposed substation (located west of 170th Street West) shown on Figure 4.4-1A. The proposed transmission line would traverse on-site (west of 170th Street West) until the line crosses 170th Street West at the north end of the Project site, where it crosses to the east side of the street within the public road ROW. This off-site portion of the proposed transmission line begins just north of an SEA #60, which would not be affected by the proposed transmission line. North of SEA #60, the proposed transmission line traverses the western edge of Joshua tree woodland habitat (not designated as being within SEA). The proposed transmission line route is located primarily in disturbed road shoulder and avoiding Joshua trees and continuing northward along the east side of the Los Angeles County public road ROW to the Kern County line. Refer to Figures 4.3-4A and 4.3-4B for the proposed transmission line route.

As discussed previously, the proposed transmission line route in Kern County is planned to be located on private lands adjacent to 170th Street West and within the public road ROW of 170th Street West, subject to approval by Kern County.

4.4 PROJECT CHARACTERISTICS

The proposed Project consists of a 230-MW alternating current (AC) solar PV facility located on 2,100 acres of land that was previously used for agricultural production in northern Los Angeles County along SR-138, also designated as West Avenue D (Figures 4.3-2 and 4.3-3). The proposed solar facility would involve development of approximately 1,955 acres within the overall Project site. The Project includes an overhead 230-kV transmission line for interconnecting the electrical output of the Project to the regional transmission system. The proposed transmission line is approximately 4.25 miles long (0.75 mile on-site and 3.5 miles off-site), and will interconnect to SCE's planned Whirlwind Substation north of the Project site in southern Kern County. The Project is currently planned to begin construction in the fourth quarter of 2010 and to be completed by the fourth quarter of 2013.

4.4.1 Facility Equipment

The major Project equipment includes the following:

- PV solar panels
- Single-axis trackers (to position PV panels with the sun's movement), or fixed-tilt supports
- Inverters (to convert electricity from direct current [DC] to AC)
- Pad mounted transformers and circuit breakers

The proposed design is to arrange PV panels, tracking units, inverters, and transformers into 1- to 3-MW blocks, that combined, will achieve the full plant capacity. Assuming tracking units are selected, the Project would include approximately 70,000 single-axis tilted tracker units, 1,600 drive motors, and 185 pads and enclosures for electrical equipment, including inverters and transformers. Inverter and transformer sizes will be selected based on cost and market availability prior to construction; typical sizes are described in Section 4.4.1.3. The proposed facility layout for the Project, based on single-axis trackers, and horizontal trackers for 1,000 feet on either side of SR-138, is provided on Figures 4.4-1A through 4.4-1D which show the locations of the solar panel arrays and Project facilities, as well as the location and details of associated site components such as infiltration basins, fencing, and fire breaks.

If horizontal trackers or fixed-tilt panels are used, the actual number of trackers or supports may vary. The following provides examples of possible solar panel and foundation configurations, however, any combination of panel and foundation types described below may be utilized:

- Use of tilted trackers would include 1,000 feet of horizontal trackers on either side of SR-138, and this design would involve installation of an estimated 70,000 trackers, 6,500 drive motors, and ballast foundations.
- Horizontal trackers over the entire site would involve 26,000 trackers, 26,000 drive motors, and 130,000 piles/piers.
- Fixed-tilt panels would not require trackers or drive motors, but would require an estimated 465,000 piles/piers.

4.4.1.1 Photovoltaic Solar Panels

Photovoltaic panels (or modules) will produce all of the electricity generated by the Project facilities. PV panels are non-reflective and convert sunlight directly into DC electricity, therefore consuming no fossil fuels and emitting no pollutants during operations. The Project will utilize crystalline silicon, or thin-film PV technology mounted on tracker units or fixed-tilt supports as described below.

4.4.1.2 Tracker and Fixed-tilt Units

The tracker units described in this section are based on SunPower T-20 (tilted) and T-0 (horizontal) trackers; actual equipment will be similar to this technology, and will be selected based on cost and market availability. Both the T-20 and T-0 tracker units have the capability to "track" the path of the sun, as opposed to the fixed-tilt units that do not.

On tilted trackers, the PV modules are mounted facing south and tilted at approximately 15 degrees from horizontal. The highest point on these units (i.e., the uppermost solar panel) is about 12 to 15 feet above the ground surface. The tilted tracker units will be arranged in east-west oriented rows connected by drive shafts to drive motors that rotate the solar panels from east to west to follow the sun on a single axis throughout the day (Figure 4.4-2A). A visual simulation of typical tilted tracker units with ballast foundations is provided on Figure 4.4-3.

For the tilted tracker design, the drive motors are located approximately every 1,200 feet along each east-west row, and each motor will drive up to 1,200 feet of trackers. The proposed Project design includes mounting the drive motors on ballast concrete foundations, approximately 7 feet by 12 feet in area and approximately 2 feet thick. However, the tracker units may be mounted on precast or cast-in-place concrete ballasts or embedded foundations. Ballast foundations are located at the north and south end of each tracker unit. The ballast foundations are approximately 10 feet long by 2 feet wide and 1.5 feet high. Alternatively, embedded foundations could be utilized. Embedded foundations may include: 1) drilled (concrete) piers approximately up to 24 inches in diameter and 6 to 8 feet deep; 2) driven piers approximately 4 to 6 inches in diameter and 10 to 15 feet deep; or 3) screw-type foundations approximately 4.5 inches to 12 inches in diameter and up to 15 feet deep. The

tracker units would be installed on concrete ballast or embedded foundations, whereas the fixed tilt (stationary) units, if selected, would only be installed using driven pier or screw type embedded foundations.

On horizontal trackers, the PV modules are mounted horizontal (not tilted to the south) and would be arranged in north-south oriented rows. The drive motors are typically mounted on concrete pier foundations approximately 2 to 3 feet in diameter, and 10 to 14 feet deep. The highest point for a horizontal tracker is achieved during the morning and evening hours when the trackers are tilted at their maximum angle, and is approximately 6 to 11 feet off the ground surface, depending on manufacturer. A typical horizontal tracker design is shown on Figure 4.4-2B. If tilted trackers are utilized, the Project design would include installation of horizontal trackers approximately 1,000 feet into the solar field north and south of SR-138 (see Figure 4.4-1A) to minimize the visibility of the Project from SR-138.

If fixed-tilt panels are used, they would be arranged in east-west oriented rows, and would likely utilize pile foundations for support. It is estimated that approximately 465,000 steel piles would need to be installed within the solar field area; the piles would be approximately 6 inches in diameter and 8 to 10 feet deep. The fixed tilt panels would be positioned to receive optimal solar energy, but the panels do not track the path of the sun. Fixed tilt panels would be approximately 6 feet off the ground surface at the highest point. A typical fixed tilt panel array design is shown on Figure 4.4-2C.

The height of the panels, whether trackers or fixed-tilt, may be slightly higher off the ground (up to 12 inches) if constructed in areas adjacent to Drainage A that are subject to inundation during large storm events, to avoid inundation to the solar panels or electrical equipment. The area of potential inundation relative to the need to elevate panels varies by panel type and will be determined during final design.

4.4.1.3 Inverters and Transformers

The Project inverters and medium voltage transformers, as well as other electrical equipment, are located on approximately 185 concrete pads. Each pad is approximately 15 feet wide, 60 feet long and supports 3 inverters and 1 transformer to support approximately 1.5 MW DC (for a Project total of about 550 inverters and 185 medium voltage transformers). The electrical equipment may be in contained metal or concrete enclosures. All electrical equipment either outdoor rated or within a larger enclosure will be located on concrete foundations which are at least 1 foot above the 100-year flood plain elevation to minimize risk of equipment damage due to flooding. All electrical equipment including inverters not located within a larger enclosure will be designed specifically for outdoor installation. Outdoor electrical equipment shall be contained within individual National Electrical Manufacturers Association (NEMA) 3R metal-clad enclosures. In addition, the equipment is

also subject to the product safety standard requirements for Underwriters Laboratories (UL) and Conformance European (CE) certifications. The equipment is safe to touch for humans and wildlife and poses no electrical shock risk. The outdoor equipment does not present any additional fire hazard compared to equipment inside a larger enclosure.

Fire extinguishers will be located at each inverter location and will be Class C dry, type which is suitable for electrical fires. For outdoor-rated inverters the fire extinguishers will be located inside their own enclosures and will be mounted on the same concrete foundation as the inverter. The fire extinguisher enclosures will be painted red and designed for immediate access.

Typical inverter and transformer specifics are provided below; the dimensions may vary slightly pending final Project design and manufacturer:

- Inverters:
  - Dimensions: 3.5 feet width by 12 feet length by 8 feet height
  - Capacity: 500 kilowatts (kW)
- Medium-voltage transformers:
  - Dimensions: 10 feet width by 10 feet length by 8 feet height
  - Capacity: 1,000 kilovolt-amperes (kVA)
  - Oil: Each medium voltage transformer contains approximately 400 gallons of dielectric oil (for insulation and heat transfer) that consists of fire resistant mineral oil

4.4.1.4 Electrical Collection and Distribution System

The DC output of multiple rows of PV modules is collected through one or more combiner boxes, and associated electrical wiring which would deliver DC power along an underground trench (approximately 4 feet deep and 3 feet wide) to an inverter in the electrical equipment enclosures described above. The inverter converts the DC electricity to AC electricity, which then flows to a medium voltage transformer where it is stepped up to collection level voltage (approximately 34.5 kV). Multiple transformers are connected in series, and deliver AC power along an underground trench (approximately 4 feet deep and 3 feet wide) to electrical risers located throughout the site. From the risers, the power is delivered to the internal 34.5-kV overhead collection lines to the on-site Project substation. The on-site overhead lines would be mounted on about 90 wooden poles (18 inches in diameter) approximately 60 feet tall and spaced about 160 feet apart.

Locations of the trenching, electrical risers, and overhead distribution lines are shown on Figure 4.4-4. In total, the proposed Project includes approximately 30 miles of underground trenching and 3 miles of overhead 34.5-kV collection lines on the site.

4.4.2 Facilities Auxiliary Systems

The following subsections describe the various proposed on-site facilities and auxiliary systems associated with the Project.

4.4.2.1 Building

The Project includes a single operations and maintenance (O&M) building adjacent to the solar field (see Figures 4.4-1A). The design and construction of this building will be consistent with County building standards. As indicated on Figure 4.4-5A, the building will be approximately 100 feet wide, 200 feet long, and 27.5 feet high, and will be surrounded by a paved parking area with 40 parking spaces. The O&M building will include administrative and operational offices as well as a material storage and equipment warehouse.

The O&M building will be a pre-engineered steel building, with: 1) color compatible steel siding chosen to minimize visual impact as approved by the Los Angeles County Department of Regional Planning; 2) translucent roof panels; and 3) continuous ridge ventilation. The maintenance area of the building will be provided with roll-up doors to provide equipment access to the maintenance portion of the building as well as personal access doors. The Operations area of the building will be divided into several rooms using commercial construction materials consistent with the California Building Code (CBC) and the Los Angeles County building code.

The O&M Building is expected to be supported on structural mat foundations, which consist of reinforced concrete pads typically installed at or just below grade.

4.4.2.2 Substation

The Project substation will be located along the west side of 170th Street West as shown on Figure 4.4-1A, and will step up the 34.5-kV collection level voltage to 230 kV for off-site transmission to the SCE Whirlwind Substation. The Project substation area will be approximately 350 feet by 350 feet with a drainage collection area of about 50 feet by 200 feet (Figure 4.4-5B), and will include a microwave tower, a control house, and two 50 percent high voltage transformers (each approximately 30 feet wide by 15 feet long by 15 feet high).

Each high voltage transformer contains approximately 5,000 gallons of dielectric fluid (mineral oil), and will be located on a concrete pad approximately 30 feet long by 15 feet

wide, surrounded by a 6-inch earthen or concrete containment berm/curb approximately 50 feet long by 30 feet wide. The containment area will be lined with an impermeable membrane covered with gravel, and will include a drain with a normally closed drain valve. Any stormwater or fluid in the containment area will be inspected for a sheen prior to disposal. If a sheen is observed, the tank contents will be removed by vacuum truck to an appropriate disposal site. If no sheen or contaminants are detected, the stormwater will be drained on-site. The containment and holding pond system will be designed to accommodate the volume of the dielectric fluid in the transformer plus an allowance for precipitation.

Grounding of the Project substation will be accomplished by a ground grid designed to meet the requirements of Institute of Electrical and Electronics Engineers (IEEE) 80, "IEEE Guide for Safety in AC Substation Grounding." Final ground grid design will be based on site-specific information such as available fault current and local soil resistivity. Typical ground grids consist of direct buried copper conductors with 8-foot-long copper-clad ground rods arranged in a grid pattern to approximately 3 feet outside of the substation area.

4.4.2.3 Roads, Fencing, and Security

Approximately 54,000 square feet of the overall site will be paved, which consist of the site main access road, parking area, and portions of the area around the O&M building (Figure 4.4-5A). The Project internal roadway system will include perimeter roads surrounding the facility, as well as a network of roads between solar blocks (Figure 4.4-1A). All weather access roads, consisting of compacted soil, will be installed at regular intervals throughout the site. These will include a 30-foot-wide perimeter access road, 30-foot-wide north-south roads approximately every 1,300 feet or less, and 30-foot-wide east-west roads approximately every ½ mile or less (Figure 4.4-1A). In addition, 20-foot-wide east-west roads with all-weather compacted soil will be installed approximately every 1,000 feet. Additionally, 6-foot- to 12-foot-wide unimproved (passively vegetated, non-compacted roads) two-track access roads will be provided between each row of solar panels, either north-south or east-west, depending on solar field design. If the unimproved roads are at least 12 feet wide, a 20-foot-wide road (unimproved) will be provided after every fifth row of solar panels. If the roads are less than 12 feet wide, a 20-foot-wide road (unimproved) will be provided at least every 300 feet. The layout of typical internal solar field roads is included on Figure 4.4-1B. As necessary, water or dust palliatives will be used for road dust suppression on all non-paved roads within the facility.

The Project fencing would consist of a 7-foot chain link fence with 1 foot of 3-strand barbed wire on top; additionally, a "slack wire" (non-barbed) would be installed on top of the upper strand of barbed wire as an anti-perch device.

Wildlife permeable fencing would be installed around the site perimeter in 50-foot lengths (minimum) every 200 feet, with the following exceptions:

- At the ingress and egress sections of the local wildlife travel route (see Figure 4.4-1C and Section 4.4.4.1), the length of wildlife permeable fencing would equal the width of the corridor; fencing at these areas would include approximately 450 feet along 170th Street West just north of SR-138, 200 feet at the intersection of 160th Street West and West Avenue C8, and 400 feet along West Avenue C at the northeast corner of the Project site.
- Wildlife permeable fencing would not be installed adjacent to SR-138 or the substation area (Figure 4.4-1C).

Wildlife permeable fencing would consist of a 1-foot vertical space at ground level to allow for wildlife passage, and may also include a "slack wire" (barbed), as shown on Figure 4.4-1C. The intent of the slack wire would be to discourage human access through the wildlife permeable fencing, without presenting a risk to wildlife. Other fence designs that will allow as much or greater wildlife movement may be used in certain areas if needed (e.g., at the intersection of 170th Street West and SR-138 a "break-away" design may be required to accommodate heavy flows in the event of significant flooding).

The Project site will be staffed 24 hours per day, seven days per week. This staff will include full time security, and regular security patrols will be conducted throughout the site. A perimeter security system may also be installed as necessary. Lighting will be provided at the O&M building, and the main plant access road entrance (refer to Section 4.4.2.8 for additional information on the Project lighting system).

4.4.2.4 Water Supply and Treatment

Once the Project facilities are fully operational, approximately 12 acre-feet per year (AFY) of water will be required for domestic use and process water, including solar panel washing, dust suppression, and fire protection. An approximately 100,000-gallon process water/firewater storage tank will be included on the site. The tank outlet for process water use will be at the 90,000 gallon level on the tank, so that a minimum of 90,000 gallons will be reserved for firefighting at all times. The remaining 10,000 gallons would be available for process water. The tank would be approximately 30 feet in diameter and 25 feet tall. It will be located adjacent to the 20,000-square-foot O&M building as shown on Figure 4.4-5A. The actual tank size may vary based on Los Angeles County Fire Department requirements for minimum firewater storage. An additional 10,000-gallon firewater tank will be located near the site entrance on 170th Street West, south of SR-138. Water will be supplied to this tank either by truck or a pipeline from the existing on-site agricultural or domestic wells located south of SR-138.

The primary water supply for the Project will be from on-site wells (see Figure 4.4-4). Currently, two operational wells exist on the Project site: 1) a domestic well that supplies the existing ranch houses; and 2) an agricultural well formerly used for irrigation. These existing wells may be used for process water for construction and operations, but not for domestic purposes. Domestic water supply during construction will be supplied by: 1) a new well drilled adjacent to the existing irrigation well or in the vicinity of the O&M building; or 2) a water supply contractor. Domestic water during operations will be supplied by a new well drilled adjacent to the existing irrigation well or in the vicinity of the O&M building. Any new wells drilled for domestic purposes will be developed as per Los Angeles County Department of Public Health Standards (i.e., in conformance with the California Health and Safety Code, Title 22 of the California Code of Regulations, and Title 11 of the Los Angeles County Code).

It is estimated that approximately 150 AFY of water will be required during construction (about 190 gallons per minute [gpm] of pumping per 12-hour day, or 93 gpm of continuous pumping) and approximately 12 AFY during operations (about 15 gpm of pumping per 12 hour day, or 7.5 gpm of continuous pumping). In addition, drip irrigation requirements for establishment of drought-tolerant native shrubs and Joshua trees (or other yucca species) just outside the facility fencelines north and south of SR-138, are estimated at 3 AFY or less for up to approximately 2 years following planting. Plantings would be conducted during the first year of construction, which would allow the initial watering to be completed during the construction period for the Project. The 3 AFY is included in the 150 AFY of construction water use. In addition, up to 3 AFY of additional water may be needed in the first two years of operation for supplemental planting to account for failure of some of the initial plantings. It is considered unlikely, but possible, that additional water (up to 3 AFY) may be needed later during the operation phase for supplemental plantings if landscape vegetation expires and needs to be replaced.

A pump/recovery test performed for the on-site irrigation well (see Appendix J) indicated that it could be pumped at the expected water use rate for the Project of 150 AFY (equivalent continuous pump rate of 93 gpm). This pump rate is well below the maximum recommended continuous pump rate of 250 gpm established by the pump/recovery test.

Water quality testing concluded that the water is of good quality, as evidenced by: 1) its low total dissolved solids (TDS) of 226 milligrams per liter (mg/l); 2) detection of only one organic chemical (chloromethane at 1.7 micrograms per liter [µg/l] that was well below the Lifetime Health Advisory of 30 µg/l and Drinking Water Equivalent Level Advisory of 100 µg/l; and 3) radiological levels that are below state Maximum Contaminant Levels or Action Levels (USEPA 2006). Based on the above testing, it appears that both the Project water quality and quantity needs would be met with the proposed on-site wells (refer to Appendix J for details on the well testing program). As discussed above, domestic uses of water supplied

from a new well would be developed in conformance with the Los Angeles County Department of Public Health Standards (i.e., Title 11 of the Los Angeles County Code, California Health and Safety Code, and Title 22 of the California Code of Regulations).

A water pipeline may be installed to tie in the existing irrigation well (and/or a newly drilled adjacent well) to the O&M building area during the early stages of construction. The water pipeline will be located along proposed Project access roads such that additional disturbance to previously undisturbed areas will be minimized. The approximate location of the water pipeline is shown on Figure 4.4-1A; however, this location may change depending upon the final design and arrangement of the solar array. As shown on Figure 4.4-4, the proposed water line crosses SR-138. Further details regarding the construction and approvals required for the water line are discussed in Section 4.4.6.7.3. The water line may be used to supply water to both construction and operations activities. During construction, the water line will discharge to a temporary storage tank for use as required; during operations, the line will discharge to the process water storage tank described above. The water line will be installed underground and is expected to be approximately 6 to 8 inches in diameter and 2.2 miles in length; the trench would be approximately 3 feet wide and 3 to 6 feet deep (refer to Section 4.4.6.7.3). The line will be sized to meet Fire Department requirements, and the final dimensions will be determined during engineering design.

Domestic and process water may require on-site treatment. Chemical and/or filtration treatment may be required to provide safe water for domestic use, and water softening may be required to provide the necessary water quality for solar panel cleaning.

4.4.2.5 Domestic Waste

The wastewater collection system will collect sanitary wastewater from sinks, toilets, and other sanitary facilities, and will be discharged to an on-site septic and leach field system. The sanitary system will consist of a buried 1,000-gallon septic tank and a leach field will be approximately 60 feet wide by 120 feet long. The septic tank and leach field will be located adjacent to the O&M building. The per-capita domestic water use is estimated to be between 50 and 60 gallons per day.

4.4.2.6 Fire Protection

The Project's firewater needs will be supplied by maintaining a minimum required water level of 90,000 gallons in the Project process water storage tank (see Section 4.4.2.4) located near the O&M building. This tank will have a capacity of approximately 100,000 gallons to accommodate process water and firewater needs. The tank outlet for process water will be located at the 90,000 level of the tank to ensure that a minimum of 90,000 gallons is available for firefighting at all times. Firewater will be delivered by an electric pump, and a diesel-fueled backup pump may be installed so that firewater is available during power

outages. Fire protection pump flow rates will be based on applicable requirements. All fire protection system pumps will be designed to be shut off manually. A separate 10,000-gallon firewater tank will be located near the site entrance along 170th Street West, south of SR-138 to provide firewater for the portion of the site south of SR-138.

Fire protection measures will include sprinkler systems in the O&M building, and portable carbon dioxide (CO_2) fire extinguishers will be mounted at the inverter/electrical distribution pads throughout the solar array. A FM200 fire suppression system, or equivalent, will be used in the plant control room and electrical/control rooms at the O&M Building. If electrical inverters and medium-voltage transformers are housed together in larger, combined walk-in enclosures (i.e., versus individual cabinet-type enclosures), FM200 fire suppression would be incorporated into each combined enclosure as required by the LACFD. FM200 is a gaseous (halocarbon), clean fire suppression agent that is a non-ozone depleting replacement for Halon 1301. Additionally, fire protection for the solar array and the off-site transmission line will be provided by vegetation management programs. Within the solar array, vegetation will be controlled to minimize fire risk by mechanical methods and use of herbicides (refer to Section 4.4.7.2). The area between rows of solar panels, including areas with infiltration basins, will be accessed by maintenance equipment during operation of the facility. To minimize fire risk from these activities, vegetation will be maintained at a height of 6 inches or less during the fire season (May through January). Additionally, fire breaks will be installed and maintained within the Project site as described in Section 4.4.6.4. Fire breaks will be maintained free of vegetation, however, solar panels and other Project equipment will be located within the fire breaks in some locations. For the off-site transmission line, clearances for vegetation will be implemented in accordance with Public Utilities Commission General Order 95 (Rules for Overhead Electric Line Construction).

All electrical equipment (including inverters) not located within a larger enclosure will be designed specifically for outdoor installation. Outdoor electrical equipment shall be contained within individual NEMA 3R metal clad enclosures. Additionally, the electrical equipment (whether contained within an enclosure or outdoor-rated) are subject to the product safety standard requirements of the UL and CE certifications, which include assurance that the equipment would be safe to touch by humans and wildlife, and would not pose electrical shock hazards. Fire extinguishers will be located at each inverter, and will be Class C (dry) type suitable for electrical fires. For outdoor-rated inverters, the fire extinguishers will be located inside individual enclosures mounted on the electrical equipment pads. The fire extinguisher enclosures will be painted red and designed for immediate access.

The PV panels within the solar array have been tested in accordance with UL: 1) UL1703 Section 31.1 (spread of flame) and 31.2 (burning brand); as well as 2) UL790 (Standard Test Methods for Fire Tests of Roof Coverings). In accordance with these tests, the panels are

rated for residential rooftop applications and have a Class C fire resistance rating (able to withstand light exposure to fire from outside sources).

Inverters and transformers may be located within electrical equipment enclosures (see Section 4.4.1.3), which will be either metal or concrete structures. Any fire that could potentially occur would be contained within the structures, which are designed to meet NEMA 1 or NEMA 3R IP44 standards for electrical enclosures (heavy duty sealed design to withstand harsh outdoor environmental conditions). In the event that the electrical equipment (inverters and transformers) are housed in the large enclosures, a FM200 fire suppression system will be installed in each enclosure, as required by the LACFD.

4.4.2.7 Plant Control System

The Project will have a Supervisory Control and Data Acquisition (SCADA) system located in the O&M building that will allow for remote monitoring and control of inverters and other Project components. The SCADA system will be able to monitor Project output and availability, and to run diagnostics on the equipment.

The Project will also have a local overall plant control system (PCS) that will provide monitoring of the solar field as well as control of the balance of facility systems. The microprocessor-based PCS will provide control, monitoring, alarm, and data storage functions for plant systems as well as communication with the Solar Field SCADA system. Redundant capability will be provided for critical PCS components so that no single component failure will cause a plant outage.

All field instruments and controls are expected to be hard-wired to local electrical panels. Local panels are expected to be hard-wired to the plant PCS.

4.4.2.8 Lighting System

The Project's lighting system will provide operation and maintenance personnel with illumination for both normal and emergency conditions. Lighting will be designed to provide the minimum illumination needed to achieve safety and security objectives and will be directed downward and shielded to focus illumination on the desired areas only and avoid light spillage on adjacent properties. Project lighting will be located at the O&M building, parking area, the main plant access, pump and similar equipment locations (e.g., fire pump house), and the substation control structure (see Figure 4.4-1A); there will be no lighting within the solar array. Lighting will be no brighter than required to meet safety and security requirements, and the lamp fixtures and lumens will be selected accordingly. Lights will be shielded, and lenses and bulbs will not extend below the shields. To ensure safety and security requirements are maintained, lights at the main plant access gate, doorways, and the O&M building parking area will remain in the on position, and will be light-activated to

automatically come on in the evening and shut off in the morning. Other lights that are not normally required to be on for safety and security (such as at the pump and equipment locations and substation, which do not need to be accessed on a frequent basis) will be normally shut off and turned on only when worker activity requires. Once final plant design is complete, and prior to installation of exterior lighting systems, a facility lighting plan will be prepared for County approval that will identify the location and types of lighting, and light controls to be implemented.

The Project's sources of nighttime illumination will be nearly 0.5 mile from the Joshua tree woodlands within SEA #60 at the closest point. Project lighting is therefore expected to be nearly undetectable within the SEA, and light spillover onto surrounding properties is not expected. If lighting at individual solar panels or other equipment is needed for nighttime maintenance, portable lighting will be used.

4.4.2.9 Meteorological Station

The Project will include one or more on-site Solar Meteorological Stations (SMS). Each SMS will consist of two solar energy (irradiance) meters, as well as an air temperature and a wind meter. The equipment is mounted on two tripods, 6 and 10 feet in height, that will require no permanent foundation. Power for the SMS will be provided by the plant essential power system or a dedicated PV panel with a small battery; data will be communicated directly to the PCS. The SMS will be located inside the solar array field or adjacent to the O&M building as required to quantify the solar resource for electrical generation predictions and coordination with the CAISO.

4.4.3 Electrical Systems

4.4.3.1 Electrical Supply for Facility Auxiliary Systems

During daylight hours, power for plant auxiliaries will be provided by the Project's electrical generation. During non-daylight hours, the Project will require power from an external source for the O&M building, to keep transformers warm during non-daylight hours, to realign the trackers to the east at night so that they are properly oriented to catch the morning sun the following day, and for plant lighting and security. This power will be provided by either back feed from the electrical grid or from a local electricity provider. Power from the distribution service will be stepped down to an appropriate voltage to support plant auxiliaries and will be connected to the station service power switchgear.

An emergency diesel powered firewater pump may be installed to provide power for fire protection in the event that power from the electrical grid is unavailable.

4.4.3.2 230-kV Electrical Transmission

Power generated by the Project will be delivered from the on-site substation to the electrical grid through the proposed 230-kV interconnection to SCE's planned Whirlwind Substation to the north of the site. The proposed Project transmission line route follows 170th Street West approximately 4.25 miles (3.5 miles of which is off-site) in a northerly direction to the Whirlwind Substation location (Figure 4.3-2). Approximately 2.25 miles of the route is located within Los Angeles County and approximately 2 miles within Kern County. The transmission line will be located on the Project site for less than 1 mile, from the on-site substation to the northern property boundary. The line would then be within the 170th Street West road ROW on the east side of the road for approximately 1.5 miles north to the Kern County line.

Kern County has indicated that it may require the Project to obtain a ROW up to 200 feet wide adjacent to the County road ROW for the transmission line. The proposed transmission line route (refer to Figures 4.3-4A and B) and poles in Kern County are designed to accommodate Kern County's request. The new ROW may then be made available for use by other renewable energy projects under separate approvals for access to the Whirlwind Substation. The proposed Project transmission poles are expected to be located on private lands adjacent to the 170th Street West road ROW south of Astoria Avenue, and within the public road ROW north of Astoria Avenue in Kern County, but could be located anywhere within the expanded study area as shown on Figures 4.3-4A and 4.3-4B. The final location of the transmission line in Kern County will be subject to private landowner negotiations, SCE corridor crossing and Whirlwind Substation interconnection routing requirements, and Kern County requirements and approvals. The planned ROW width for the Project transmission line in Kern County is a minimum of 100 feet. The Project will require Kern County approval for portions of the transmission line in the County's road ROW.

The transmission line conductors (wires) will be made of non-reflective material and will be supported on approximately 46 tubular steel poles (between 50 to 125 feet tall for all proposed 230-kV poles, as depicted on Figure 4.4-6) of a color (as approved by Los Angeles and Kern counties) that will minimize the visual impact. The transmission poles will typically be about 4 to 6 feet in diameter (at the base, tapering upward) and will be located approximately every 700 feet (on average) between the on-site substation and the off-site interconnection point (i.e., SCE Whirlwind Substation). Larger poles, approximately 6 to 10 feet in diameter, will be required at angle or dead-end points on the transmission line due to greater lateral load on the poles (see Figure 4.4-6).

The transmission poles will be set in concrete foundations approximately 20 to 30 feet deep. The concrete foundations will typically extend 1 foot laterally beyond the base of the poles (i.e., will add up to approximately 2 feet to the overall diameter of the permanent footprint of

each pole location). All poles will be grounded using ground rods or other suitable means. Additionally, shield wire will be attached to the ground wire for lightning protection. To minimize corona noise, the diameter of the conductor will be optimized and corona rings will be installed at all conductor attachment points.

Data showing the relationship between electric and magnetic field (EMF) strength and distance from the 230-kV transmission line are provided on Figures 4.4-7 through 4.4-11 for the following cases:

- 60 hertz (Hz) electric field
- 60 Hz magnetic field
- Radio interference at 1 megahertz (MHz)
- Television interference at 75 MHz
- Audible noise (fair weather and rain)

These EMF levels were computed at 1 meter above ground level using methods developed by the Electrical Power Research Institute (EPRI 1987). The calculation tools consisted of a suite of Microsoft Excel® spreadsheets developed by Bonneville Power Administration that follow a previously developed program entitled, "Corona and Field Effect Program" (Version 3.0)(BPA undated).

Calculated electric and magnetic fields for the proposed 230-kV transmission line design (single circuit) are shown on Figures 4.4-7 and 4.4-8, respectively. Maximum electric field (60 hertz [Hz]) strengths are calculated to be approximately 2.7 kilovolts/meter (kV/m) under the transmission line, decreasing to about 0.1 kV/m within 50 feet (laterally) of the transmission line centerline (TriAxis 2009). Maximum magnetic field (60 Hz) strengths would be approximately 79 milligaus (mG) under the transmission line, decreasing to about 10 mG within 100 feet (laterally) of the transmission line centerline.

The portion of the 230-kV transmission line in Kern County may involve use of transmission structures (refer to Figure 4.4-6) that are capable of accepting a second circuit in the future (e.g., by other projects). EMF levels for a double circuit configuration would be less than a single circuit because the conductors can be arranged such that the EMF fields from one circuit partially cancels the fields from the other circuit. The potential use of double circuit poles in Kern County is dependent on forthcoming decisions by Kern County relative to their renewable energy utility interconnection plans and requirements for projects interconnecting to SCE's Whirlwind Substation.

For the 34.5-kV collection lines, maximum electric field 60 Hz strengths are calculated to be approximately 0.21 kV/m under the transmission line, decreasing to near 0 kV/m within 50

feet (laterally) of the transmission line centerline. Maximum magnetic field (60 Hz) strengths would be approximately 27 mG under the transmission line decreasing to about 3 mG within 50 feet (laterally) of the transmission line centerline.

The proposed transmission lines would meet the requirements of the California Public Utilities Commission (CPUC), General Order (GO) No. 95, Rules for Overhead Electrical Line Construction. Compliance with these requirements would limit potential Project EMF emissions to levels that are consistent with CPUC policies which consider protection of public health, among other factors.

4.4.4 Site Drainage Facilities

4.4.4.1 Site Drainage

The Project site is traversed by three primary ephemeral drainages (Drainages A, B and C), as shown on Figure 4.4-1A. A fourth ephemeral drainage (Drainage D) is located at the northeastern property boundary and only a small portion of the southern bank of the drainage is on the Project site. All site drainages will be avoided and remain unmodified.

As identified in the Drainage Concept Report prepared for the Project site (refer to Appendix C of this EIR), the total watershed area that is tributary to the Project site is approximately 23 square miles. The majority of this area (approximately 16 square miles) drains onto the site in the vicinity of West Avenue D (SR-138) and 170th Street West intersection, forming a deeply incised channel (Drainage A). Drainage A flows from this intersection in a northeasterly direction onto the Project site; midway through the site it diminishes in bed and bank features and becomes nearly non-existent. There is also a significant defined channel along the southern edge of the Project site known as Broad Canyon Creek (Drainage C) that receives runoff from approximately 5 square miles.

As shown on Figure 4.4-1A, the proposed Project includes a dedicated flood control easement (100 feet wide) to the LACDPW along Drainage A, with an extension to the northeastern property boundary. The proposed Project also includes a setback along the incised portion of Drainage A as described below.

As shown on Figure 4.4-1A, a drainage easement and setbacks, as applicable, will be provided along Drainage A, traversing the Project site from southwest to northeast. Beginning at the intersection of 170th Street West and SR-138, the easement (100-foot-wide) and setback will follow Drainage A along its jurisdictional (state jurisdictional) length (as per California Department of Fish and Game). Within this segment, all development will be set back 100 feet from the top of banks on both sides of the drainage. Beyond the segment containing the jurisdictional drainage, the 100-foot-wide easement will be routed approximately northeast to the northeastern property boundary. Drainage A, including the

incised jurisdictional portion, Project setbacks, and the 100-foot-wide easement extending to the northeast corner of the Project site, will also function as a local wildlife movement travel route. The drainage easement/setback along Drainage A will not be fenced along its length, but will have wildlife permeable fencing installed at the ingress/egress points (refer to Section 4.4.2.3 for a description of Project fencing).

4.4.4.2 Berms and Infiltration Basins

Areas of the facility that could potentially release contaminants, such as the paved areas surrounding the O&M building and delivery areas, will be provided with stormwater containment (i.e., berms) designed to accommodate runoff from the 25-year storm event, as appropriate, as well as the requirements of the Los Angeles County Standard Stormwater Urban Mitigation Plan (SUSMP). These paved areas will be maintained and any vehicle leaks or spills will be periodically cleaned with sorbent materials to minimize the potential for contamination.

In order to comply with the Los Angeles County Low Impact Development Ordinance and Department of Public Works requirements for post-development runoff volume, a series of infiltration basins measuring approximately 8 feet wide by 15 feet long by 1 foot deep, and spaced about 50 feet apart will, be constructed behind every other row of solar panels; the infiltration basin alignments will be staggered from row to row (see Figure 4.4-1B). The cut from each basin will be placed into spoils banks located between the basins; each spoils bank will measure approximately 50 feet long by 16 feet wide by 4 inches thick (see Figure 4.4-1B).

The infiltration basins will function as a series of detention basins that will detain the excess stormwater runoff flow and volume on-site and let the detained stormwater infiltrate into the ground. It is estimated that approximately 9,600 infiltration basins and 9,600 spoils banks will be installed within the solar array.

In addition to the smaller basins located within the panel rows, two larger infiltration basins each having a capacity of about 28,300 cubic feet (1,048 cubic yards), will be constructed upgradient of the proposed O&M facility (see Figure 4.4-5A) and substation (see Figure 4.4-5B) areas. These basins will help to manage the excess runoff volume due to the decreased permeability of these two areas. Additional smaller basins may be constructed within the substation and O&M area to manage stormwater quality.

In addition to balancing the runoff volume, the infiltration basins described above would also function as a mitigation method as required by the SUSMP. Stormwater runoff will flow into these infiltration trenches where the water infiltrates into the soil and potential pollutants are removed through a combination of filtration, adsorption, and biological processes.

4.4.4.3 Cutoff Wall

The existing incised channel in Drainage A has the potential to naturally meander during large storm events due to bank and bed erosion. No development or construction activities will occur within at least 100 feet from the top of bank on both sides of the existing incised channel. However the potential still exists for the channel to meander beyond these limits. As a protective measure, a cutoff wall consisting of sheet piling may be installed along each side of the existing incised channel in Drainage A (see Figure 4.4-1A) at least 100 feet from the CDFG jurisdiction boundary of the drainage. Approximate horizontal length of the sheet piles is 5,000 feet on each side of Drainage A for a total length of approximately 10,000 feet.

The sheet piling material will be steel or PVC. Each sheet pile will be interlocking, and measure approximately 18 inches wide by 7/16 inch thick by 15 feet long. Sheet piling requires no excavation or grading work, and the top of the sheet pile will be installed at or slightly below existing grades. The depth of the sheet piling will be approximately 1.5 times the existing channel depth, which would result in a depth of about 15 feet. Final depths will be determined during detailed design when a detailed scour analysis will be prepared.

4.4.4.4 Pre-/Post-development Site Flows

Based upon the Psomas Design Concept Report, the pre-development flows leaving the Project site range from 9.43 to 4,796.14 cubic feet per second (cfs) for the Los Angeles County Capital Flood 50-year Burned and Bulked Condition; the post-development flows (with Project design measures applied) range from 9.15 cfs to 4,802.19 cfs. Pre- and post-development flow volumes range from 2.28 to 853.67 acre-feet and 2.42 to 851.27 acre-feet, respectively.

4.4.5 Natural Hazards

A geotechnical investigation report for the proposed site is provided in Appendix B. This investigation report includes a review of potential geologic hazards, seismic ground motion, and soil liquefaction. The principal natural hazard associated with the proposed Project site is potential seismic hazard. The proposed Project site is located in a seismically active area. The San Andreas Fault (a Type A Fault) is located approximately 6.1 miles south of the site and represents the most substantial hazard to the site from a design standpoint. All project structures will be designed using site specific seismic design parameters in conformance with California Building Code criteria, as applicable, to ensure safety for operating personnel and adequate protection against structural and equipment damage. The structural and seismic design criteria for project buildings and equipment is provided in Appendix B.

Flooding is a potential hazard of concern. Based on a review of FEMA flood maps, the site is primarily located in areas of 0.2 percent or less annual chance of flood. However, based on

the hydrologic analysis for the Project, portions of the proposed Project boundaries may be subject to 100-year flooding zones and portions are within FEMA Zone X, shaded (500-year flooding zones). Occupied structures, however, are located well outside (approximately 1/3 mile) flood zones.

4.4.6 Construction

4.4.6.1 Construction Plan and Schedule

Construction of the Project is scheduled to begin in the fourth quarter of 2010 and be completed in the fourth quarter of 2013 (refer to Figure 4.4-13). The proposed Project is planned to begin generating electricity and delivering it to the electrical grid via the Whirlwind Substation in the third quarter of 2011 (or when the Whirlwind Substation is available, if later). Construction activities are anticipated to be sequenced as shown on Figure 4.4-13, and the overall construction period is expected to be approximately 38 months. Under this schedule, PV module installation is anticipated to occur at a rate of approximately 8 to 10 MW per month.

The solar field will be constructed in six stages so that only a portion of the Project site will be worked on at any given time. It is currently expected that construction will begin north of SR-138 and transition to the south side of SR-138 later in the construction period.

Construction will generally occur between 7:00 a.m. and 5:00 p.m., Monday through Friday. Additional hours may be necessary to make up schedule deficiencies, or to complete critical construction activities. For instance, during hot weather, it may be necessary to start work earlier in the morning or work later in the evening to avoid pouring concrete during hours when ambient temperatures are high. Construction working hours will be scheduled to comply with Los Angeles County noise ordinances and policies, as applicable.

The on-site construction workforce will consist of laborers, craftspeople, supervisory personnel, support personnel, and construction management personnel. The on-site assembly and construction workforce is expected to reach a peak of approximately 453 workers for the pile foundation construction scenario, or 341 workers for the concrete ballast scenario.

4.4.6.2 Preconstruction Activities

Preconstruction studies for the Project will include final engineering design. Additionally, meteorological and solar insolation monitoring stations would be installed, as needed, for Project operations. A surveyor will conduct a land survey of the Project site and will stake the construction area as needed.

Prior to the initiation of construction a Mitigation Monitoring and Reporting Plan (MMRP) will be prepared in accordance with CEQA requirements (California Public Resources Code, Section 21081.6) that will ensure compliance with all mitigation measures identified in this Draft EIR. Additionally pre-construction plans required by construction permits, regulation, or ordinance will also be prepared, as applicable. These may include but are not limited to: 1) Hazardous Material Management Plan; 2) Storm Water Pollution Prevention Plan; and 3) Recycling and Reuse Plan.

4.4.6.3 Site Mobilization

The Project construction contractor will mobilize and begin to establish temporary construction facilities during the first few months of construction. Additionally, temporary construction power and water supplies will be established. Temporary power for Project construction is expected to be provided by mobile diesel-driven generator sets and/or by temporary electrical service from the local power provider. Water for construction will be supplied by the 2 existing on-site wells, and/or the new well. Arrangements for transferring the water to the construction areas will be established as required, and may include water trucking or aboveground piping. It is anticipated that approximately 150 acre-feet per year of water will be required during construction to support concrete manufacturing, dust control, panel washing, sanitary use, and temporary landscape watering. Domestic water supply during construction will either be supplied by the new well and treated as necessary to meet Los Angeles County Public Health Department standards, or will be provided by a water supply contractor.

As construction activities expand in stages and/or transitions from north to south, these temporary construction facilities will be modified or relocated as required.

4.4.6.4 Site Clearing and Grading

Prior to installation of Project facilities, all on-site vegetation will be cut to a height of 6 inches or less above ground surface. Such vegetation cutting will be completed as necessary ahead of specific activities and/or stages of construction. In addition to cutting of vegetation over the portion of the site to be developed (i.e., excluding avoidance areas), Project construction will require temporary vegetation removal over portions of the site for installation of facilities such as construction staging and laydown areas, temporary access roads, electrical trenches, infiltration basins, and solar equipment fabrication areas. In other locations, such as the permanent O&M building, electrical equipment pads, electrical substation, permanent access roads, and fire breaks, permanent vegetation removal will be required. Vegetation clearing and removal will be conducted to minimize the amount of disturbed ground surface at any one time, and will be accomplished using mowers, skip

loaders, bulldozers, chippers, or dump trucks, as required. The estimated maximum area of ground disturbance during construction is approximately 980 acres.

In addition to the site clearing for the temporary and permanent Project facilities described above, vegetation will be cleared for permanent fire breaks that will be installed during Project construction. As shown on Figure 4.4-1D, these will include:

- A 100-foot-wide perimeter fire break from the edge of the property boundary (or road ROW, as applicable). Where the property boundary is adjacent to sensitive resources, such as along the southern site boundary and the Joshua Tree Woodland Habitat to the north and east, the break will be maintained inside the perimeter fence line. Additionally, the 100-foot-wide perimeter fire break will be maintained inside the perimeter fence line on both sides of SR-138.
- Fire breaks 200 feet in width within the facility property, approximately every 0.5 mile, as shown on Figure 4.4-1D.
- Fire breaks will be maintained free of vegetation through regular maintenance, but project facilities, such as solar panels, will be located within the fire breaks in some locations.

Because of the flat topography at the site, Project grading to level the site will not be required to prepare the site for solar PV facilities installation. The foundations for both the tracker and fixed-tilt units can be adapted for installation on uneven ground and minimize the need for grading, as follows: 1) the solar panel units are equipped with adjustable telescoping legs; and 2) the pile supports for the fixed-tilt units can be cut or driven to different lengths as needed.

Grading will be required for the O&M and substation areas, as well as the permanent access roads. However, the majority of grading will be associated with the infiltration basins and spoils banks. As shown on the site grading plan (Figure 4.4-12), the cut/fill for the basins and banks is estimated to be approximately 113,000 cubic yards. Cut/fill for the permanent 30-foot-wide access roads is estimated to be approximately 54,000 cubic yards. The total Project grading-related balanced cut and fill is estimated to be approximately 180,000 cubic yards (refer to Table 4.4-1). Also, an estimated 67,000 cubic yards of soil from on-site excavations (non-grading related) would occur during Project construction. If drilled pier foundations are used, approximately 1/3 cubic yard of soil will be excavated for each pier. This soil will be spread on the ground adjacent to the individual piers. Installation of drilled pier foundations would result in an estimated 42,500 cubic yards of excavated material for approximately 130,000 solar array support foundation holes. The total quantity of balanced cut and fill and non-grading related excavations on the site will depend on the final Project design and associated options selected, including foundation type(s). The worst case combined cut and

fill (grading) and excavation (non-grading related) quantity for development of the Project site is estimated at 250,000 cubic yards of soil material that would be balanced on the site.

Areas disturbed due to Project construction activities will be stabilized during construction to minimize wind and water erosion and generation of fugitive dust, by watering and/or the use of dust palliatives or tackifiers. Chipped mulch created as a result of selective vegetation removal, may also be spread on-site for this purpose, as appropriate. Cleared and graded temporarily disturbed surfaces that will not be subject to future disturbance will be revegetated as practical to minimize dust and erosion. Areas of temporary disturbance will be revegetated with native grasses and wildflowers as soon as feasible, based on seasonal weather conditions, to maximize revegetation success. No woody vegetation, such as rubber rabbitbrush scrub will be planted or maintained within the solar field. To facilitate redevelopment of on-site vegetation, topsoil generated by Project grading will be saved and spread over disturbed areas, as available.

4.4.6.5 Materials and Equipment Staging Areas

Multiple temporary staging and laydown areas will be located throughout the Project site to support final assembly and installation (Figure 4.4-14). The staging areas will be approximately 7 acres each and the laydown areas will be approximately 0.7 acre each. Approximately 15 staging areas and 41 laydown areas will be required throughout the Project construction period. As construction progresses across the site, equipment will be removed from each temporary staging and laydown area, solar tracker units will be installed, and the areas will be revegetated, as appropriate.

4.4.6.6 Temporary Facilities

4.4.6.6.1 Concrete Batch Plant. Depending upon the solar panel foundation type and concrete requirements, the Project may include a temporary and portable concrete batch plant. If needed, the batch plant will operate for up to approximately 31 months of the construction period, and will be located immediately east of the O&M facility area. Figure 4.4-5A shows the location of the plant and Figure 4.4-15 shows the general arrangement of its components. As shown on the Figure 4.4-15, the plant will be sloped and bermed to contain concrete make-up water as well as equipment wash water.

4.4.6.6.2 Assembly Buildings. The panel supports (tracker units or fixed-tilt supports) for the PV panels will be assembled on-site in two temporary assembly buildings approximately 260 feet long by 150 feet wide and 35 feet high; as shown on Figure 4.4-5A, these buildings will be located immediately south of the O&M facility. The proposed temporary structures will require no permanent foundation, and will consist of galvanized tubular steel clear-span frames, covered with skins of heavy-duty, weatherproof, reinforced fabric. The fabric will be translucent to transmit sufficient light for working inside the buildings without electric

lighting, and will also be flame retardant and mildew resistant. The temporary structures will be removed following their use, and solar panels will be installed at these locations.

4.4.6.6.3 Construction Trailers and Associated Work Facilities. Temporary construction trailers and associated work facilities will be installed during site mobilization that will include:

- Full-length trailer offices or equivalent
- Portable Chemical toilets (Note: construction workers will use the on-site portable toilets and will not use the operations sanitary facilities)
- Parking for construction worker vehicles
- Tool sheds/containers/dumpsters
- Construction equipment parking
- Construction material laydown area

It is expected that the majority of these temporary facilities will be located at a staging area in the O&M vicinity throughout the construction period. However, as construction progresses from north to south, some of these trailers/facilities may be moved to other staging/laydown areas, or additional trailers/facilities may be brought on-site. Once construction activities are completed at each staging/laydown area, all materials will be removed, solar panels installed, and the area will be revegetated as appropriate. A general arrangement for typical temporary construction facilities is shown on Figure 4.4-15.

4.4.6.7 Major Facility Construction

The major Project construction components include: 1) Project substation; 2) O&M facilities; 3) infiltration and cutoff wall; 4) solar field areas one through six; and 5) on-site/off-site 230-kV transmission line. The Project components will be constructed to comply with applicable codes, standards, and ordinances as well as the recommendations of the Geotechnical Engineering Report prepared for the Project by Terracon in 2009. A description of the construction of these components is summarized below.

4.4.6.7.1 Project Substation. Project substation construction is expected to occur over a period of about 10 months. Temporary construction laydown and parking areas will be provided within and/or adjacent to the substation site. The construction sequence for substation construction includes the following general steps:

- Site Preparation, including detailed construction surveys, mobilization of construction staff, grading, and preparation of drainage features. Topsoil will be preserved and stored

in an adjacent area, and will either be spread on areas to be restored or saved for use on other Project areas as appropriate.

- Installation of foundations and footings for the transformers, switches, microwave tower, etc.
- Major equipment installation will commence once the foundations are complete. The substation components (e.g., transformers, control house, etc.) will be assembled on-site and installed on their foundations.
- Testing and commissioning of subsystems will be done as they are completed. Major equipment will be tested once all supporting subsystems are installed and tested.

4.4.6.7.2 Operations and Maintenance Facilities. Construction of the O&M facilities and associated auxiliary systems and civil works (as described in Section 4.4.2) are anticipated to be one of the first major construction activities to begin in the fourth quarter of 2010, and are expected to occur over a period of approximately 9 months. The general construction sequence for these facilities includes: 1) site grading and vegetation clearing as required; 2) excavation or trenching and installation of foundations/footings and utilities; and 3) building/structure and facility construction. Topsoil from excavations or trenching will be saved in adjacent areas for use in restoration of disturbed areas following construction.

4.4.6.7.3 Water Supply Pipeline. Construction of the water pipeline from south of SR-138 to the O&M facility area (refer to Section 4.4.2.4) is expected to take approximately 3 months. As shown on Figure 4.4-1A, the line will be located along proposed Project access roads such that disturbance to previously undisturbed areas will be minimized. Construction of the water pipeline will consist of the following elements:

- Approximately 2.2 miles of buried 6- to 8-inch-diameter PVC pipe.
- The SR-138 crossing will be accomplished using either the horizontal directional drilling (HDD) or jack and bore methods. Currently, it is assumed that the jack and bore method (worst case) will be used, which will require two excavations on either side of SR-138: 1) an excavation approximately 15 feet wide by 50 feet long by 10 to 15 feet deep to the south; and 2) an excavation approximately 8 feet wide by 10 feet long by 10 to 15 feet deep to the north. It is estimated that the pipeline would be installed at a depth of approximately 6 feet beneath SR-138, but the final depth will be determined based on consultation with Caltrans. Both excavations will be located outside of the SR-138 ROW. Refer to Figure 4.4-16 for preliminary construction details.
- The pipeline trench will be approximately 3 feet wide, 3 to 6 feet deep, and 2.2 miles in length. It is expected that the trench will be excavated and the pipeline installed prior to the installation of the solar array underground AC/DC conductors such that it would be located beneath these facilities.

- Topsoil from the excavations and trenching will be preserved and stockpiled immediately adjacent to these areas. Since the pipeline will be installed in a proposed Project access road, this topsoil will be saved for use in restoration of other Project areas following construction.
- The water pipeline will be hydrotested; following completion of the test, hydrotest water will be discharged on-site in accordance with the Project Storm Water Pollution and Prevention Plan. It is estimated that up to about 30,000 gallons of water will be needed to perform the hydrotest. Management and discharge of the hydrotest water will occur in accordance with Regional Water Quality Control Board requirements.

4.4.6.7.4 Infiltration Basins and Cutoff Wall. Construction of the infiltration basins and associated spoils banks will occur during the approximately 31-month construction period of the solar fields (see Section 4.4.6.7.5). Prior to their installation, the vegetation will be cleared from the construction area to a height of 6 inches or less above ground surface. Equipment (e.g., bulldozers, loaders, graders, etc.) will then cut and grade the infiltration basins and spread the resultant fill and vegetation mixture to form the spoils banks in the adjacent area. The basins and banks will be stabilized using soil tackifiers or similar material until vegetation can be established.

Construction of the sheet pile cutoff wall is expected to occur over a period of approximately 4 months. The sheet piles will be installed using a vibratory hammer or similar installation approach. Vibratory hammers (the most common installation equipment) are typically suspended from a crane or excavator and clamped to the top of the sheet pile. The vibratory energy liquefies the soil at the toe of the sheet pile and the weight of the hammer pushes the pile into the soil.

Installation is expected to proceed with two crews, one working on each side of the existing channel in Drainage A. Each crew will generally consist of a small hydraulic crane unit or excavator with a vibratory hammer unit attached. Sheet pile installation typically requires no excavation or grading work.

4.4.6.7.5 Solar Field Areas 1 through 6. As discussed in Section 4.4.6.1, construction of solar fields will occur in 6 stages at a rate of approximately 8 to 10 MW per month. The total solar field construction period is expected to occur over a period of approximately 31 months. For each stage, assembly of the tracker or fixed tilt units and construction of the solar array will occur concurrently. The trackers/fixed-tilt units will be assembled on-site in two temporary covered assembly buildings as described in Section 4.4.6.6.2. Solar panel installation would include the installation of approximately 165,000 ballast foundations that would be set in place approximately at grade level using trucks, loaders, and cranes, or up to approximately 465,000 embedded foundations, as described above in Section 4.4.1.2.

Construction of the solar array will occur in a series of approximately 1- to 3-MW blocks and each block will be connected to the electrical grid as it is completed. The tilted tracker units will be constructed approximately 17 feet apart in east-west rows and connected to a drive motor that rotates the solar panels to follow the sun's east to west progression across the sky. One motor can drive approximately 1,200 feet of trackers. Horizontal trackers are proposed to be installed along the north and south sides of SR-138, at a minimum, to reduce the visibility of the Project from SR-138. Where horizontal trackers are used, the tracker rows will run in a north-south direction and will be approximately 15 feet apart. If fixed-tilt supports are utilized, rows would be oriented east-west and the rows would be closer together. Improved (compacted soil) 30-foot-wide roads will be generally north-south oriented approximately every 1,300 feet or less, and east-west oriented approximately every half mile or less (refer to Section 4.4.2.3). In addition, 20-foot-wide east-west roads (all-weather compacted soil) will be installed approximately every 1,000 feet, and unimproved access roads within the solar field will be provided as described in Section 4.4.2.3. Most of the remaining ground surface within the solar array will either be left vegetated or will be revegetated as necessary to minimize dust. Mowing or other methods of vegetation control will be necessary in order to avoid vegetation interfering with the solar equipment and to meet fire protection requirements.

Approximately 25 miles of trenches will be excavated using ditching equipment or backhoes to install the underground wiring and conduits that collect power from the PV solar panels and deliver it to the inverters/transformers and the overhead collection lines (refer to Section 4.4.1.4). Holes for the overhead collection line poles will be augured, and will be approximately 18 inches in diameter and 8 to 10 feet deep; if the auger meets refusal, a jackhammer will be used to break through the resistant layer until the auger can be used again. Once the hole is complete, the poles will be set using a line truck and the holes will be backfilled with native soil and compacted by hand. Approximately 90 poles and 3 miles of overhead collection lines will be installed.

4.4.6.7.6 <u>On-site/Off-site 230-kV Transmission Line</u>. Construction of the proposed 230-kV transmission line along or adjacent to 170th Street West is expected to take place over a period of 4 months, and will occur in time to deliver first power from the Project once construction of the Whirlwind Substation is completed. The centerline of the transmission line route will first be surveyed, with each pole location clearly staked. The proposed transmission line is expected to require a total of approximately 46 poles, 22 in Los Angeles County (10 on-site and 12 off-site) and 24 in Kern County. The transmission line route and pole locations are planned to be located approximately 5 feet inside of the road ROW (refer to Figures 4.3-4A and 4.4-6) in the Los Angeles County portion of the off-site transmission line. The portion of the transmission line route in Kern County is proposed to be constructed on private lands adjacent to 170th Street West and within the public road ROW as shown on Figures 4.3-4A and 4.3-4B. As shown on Figures 4.3-4A and 4.3-4B, the Draft EIR has

evaluated an expanded transmission route study area in Kern County, and the final route could be located anywhere within the expanded study area subject to necessary approvals. At a minimum, the transmission line route in Kern County is planned to involve use of the public road ROW north of Astoria Avenue (as shown on Figure 4.3-4B) subject to Kern County approvals and requirements. Pole holes will typically be approximately 6 to 8 feet in diameter, 20 to 30 feet deep, and will be augured with a truck mounted pole auger/pressure digger with rock teeth. Poles will be set in poured concrete foundations within the holes. Structures and conductor support hardware will be assembled at each pole location to minimize damage during transport.

Construction of the transmission line will require a laydown area at each pole location for use as temporary laydown or as a staging area for equipment, poles, and hardware. The laydown area at each pole location is expected to be approximately 100 feet in length by 50 feet in width. For areas where the transmission line is constructed within the public road ROW, this area will likely include the road shoulder and one traffic lane of 170th Street West. Erection of the poles will occur along the road ROW, and flagmen will be used as required during construction to ensure traffic safety and uninterrupted flow. During the total transmission line construction period of approximately 4 months, it is expected that traffic flow will be intermittently restricted at each pole location while that pole is being installed. Such restriction would occur for a length of approximately 500 feet adjacent to and centered on the pole, and installation of each pole would take approximately 1 to 2 days. Once all the poles are installed, the conductors will be strung. Brief road closures will be required during this activity where the lines cross the road (including cross streets, where applicable).

For areas where the off-site transmission line is constructed on private land adjacent to 170th Street West (e.g., Kern County portion), no use of the public road ROW or associated traffic interruptions would be expected to occur except at road crossings, as applicable. Construction of the transmission line on private lands adjacent to 170th Street West would require short pole access pathways (up to 20 feet wide) (refer to Figure 4.3-4A). The proposed transmission line route in Kern County north of Astoria Avenue is planned to be located in the public road ROW and would require temporary lane closures during construction, subject to Kern County approvals and requirements.

In general, little to no grading is expected to be required for these areas (other than the excavation of pole holes), and disturbance to vegetation will be minimized, as practical. In addition, conductor-stringing sites of approximately 50 feet by 200 feet will be required: one at each end of the transmission line route, two near the midpoint, and two near the crossing point for the existing SCE transmission corridors in Kern County (refer to Figure 4.3-4A for tentative locations). Conductor stringing will occur by stationing stringing equipment at these sites, with smaller equipment (pickup trucks and flatbed trucks) traveling along the transmission line route as the conductor is installed.

4.4.6.8 Construction Equipment, Workforce, and Disturbance

4.4.6.8.1 Construction Equipment, Deliveries, and Traffic. Construction equipment and truck deliveries are provided in Appendix H for each month of the construction period. During peak construction for the concrete ballast foundation scenario, an estimated 627 truck trips (round trip) per month or 29 per day (based on a typical month of 22 working days) will be required to supply concrete, construction materials, Project components, and equipment to the site. To provide concrete for PV module foundations and other uses under the concrete ballast foundation scenario, either a concrete batch plant will be located on-site or a local (Lancaster area) off-site ready mix plant will be used. In either event, a similar number of trucks would be required to supply either concrete or concrete raw materials. Peak construction deliveries for the pile foundation scenario will require an estimated 313 truck trips (round trip) per month or 15 per day. The pile foundation scenario is the worst case for overall construction traffic considering peak construction workforce and truck deliveries combined (estimated 453 workers and 15 truck deliveries per day versus 341 workers and 29 truck deliveries per day for ballast foundation scenario).

4.4.6.8.2 Construction Workforce. The on-site construction workforce will consist of laborers, craftspeople, supervisory personnel, support personnel, and construction management personnel. The peak size of the construction workforce is anticipated to be approximately 453 workers under the pile foundation scenario, and 341 workers under the ballast foundation scenario.

4.4.6.8.3 Area of Disturbance. The estimated Project land disturbance (both temporary and permanent) is provided in Table 4.4-2. Temporary disturbance is that which is primarily due to construction, and includes equipment staging and laydown areas, temporary access roads and any graded or disturbed areas that will be restored following construction completion. Permanent disturbance is related to operational facilities, and includes the permanent roadways, parking areas, access roads, and buildings, structures and equipment that will remain in place for the life of the Project.

4.4.6.9 Hazardous Material Handling and Storage

The hazardous materials used for Project construction will be typical of most construction projects of this type. As summarized in Table 4.4-3, such materials will include gasoline, diesel fuel, oils, lubricants, solvents, detergents, degreasers, paints, ethylene glycol, and welding materials/supplies. All hazardous materials would be stored on-site in vessels/containers that are specifically designed for the characteristics of the materials to be stored; as appropriate, the storage facilities would include secondary containment. Prior to construction, a Hazardous Material Management Program (HMMP) will be developed and implemented. At a minimum the HMMP will include procedures for:

- Hazardous materials handling, use, and storage
- Emergency response
- Spill control and prevention
- Employee training
- Recordkeeping and reporting

4.4.6.10 Construction Waste Management

During construction, the primary waste generated will be solid nonhazardous waste. However, some nonhazardous liquid waste and hazardous waste (solid and liquid) will also be generated. Table 4.4-4 summarizes the typical construction waste streams generated, estimated quantities, and methods of disposal. The primary waste types are described further in Sections 4.4.6.10.1 through 4.4.6.10.3. Construction waste will be managed as per a Recycling and Reuse Plan in accordance with the Los Angeles County Construction and Demolition Debris Recycling and Reuse Ordinance, as applicable.

4.4.6.10.1 Nonhazardous Solid Waste. Solid waste generated from construction activities may include paper, wood, glass, plastics from packing material, waste lumber, insulation, scrap metal and concrete, empty nonhazardous containers, and vegetation wastes. These wastes will be segregated, where practical, for recycling. Non-recyclable wastes will be placed in covered dumpsters and removed on a regular basis by a certified waste handling contractor for disposal at a Class III landfill. Vegetation wastes generated by site clearing and grubbing will be chipped/mulched and spread on-site or hauled off-site to an appropriate green waste facility.

4.4.6.10.2 Wastewater. Wastewater generated during construction will include sanitary waste, storm water runoff, and equipment washdown water. These wastewaters may be classified as hazardous or nonhazardous depending on their chemical quality, and handled and disposed of in accordance with applicable laws and regulations.

4.4.6.10.3 Hazardous Waste. Some quantities of hazardous wastes will likely be generated over the course of construction. These wastes may include waste paint, spent construction solvents, waste cleaners, waste oil, oily rags, waste batteries, and spent welding materials. Hazardous wastes generated during facility construction and operation will be handled and disposed of in accordance with applicable rules and regulations. Hazardous wastes will be either recycled or disposed of in a licensed Class I disposal facility, as appropriate.

4.4.6.11 Erosion and Sediment Control Measures

Due to the removal or disturbance of soil and vegetation during construction, appropriate water erosion and dust-control measures will be required to minimize dust and sediment load to ephemeral washes around the construction site. Vegetation will be mulched or composted on-site to assist in erosion control and limit waste disposal.

4.4.6.11.1 Water Erosion Control Measures. Soil stabilization measures will be used to prevent soil erosion caused by storm water runoff. The Project will apply for coverage under the State's Construction General Permit for storm water discharges from construction activities and will prepare a Storm Water Pollution Prevention Plan (SWPPP) that will include implementation of Best Management Practices (BMPs) erosion-control measures to control storm water runoff. Site-specific BMPs will be designed by the contractor in compliance with regulations and permit conditions. As appropriate, the Project will implement practices for temporary and final erosion control, including:

- Year-round:
    - Monitor the weather using National Weather Service reports during construction to track conditions and alert crews to the onset of rainfall events.
    - Preserve existing vegetation where feasible. Conduct clearing and grading only in areas necessary for Project activities and equipment traffic. Install temporary fencing or signage prior to construction along the boundaries of the construction zone to clearly mark this zone, preventing vehicles or personnel from straying onto adjacent off-site habitat.
    - Sequence construction activities with the installation of erosion control and sediment control measures. Arrange the construction schedule as much as practicable to leave existing vegetation undisturbed until grading begins.
    - Protect areas particularly susceptible to erosion by installing controls.
    - Stabilize non-active areas as soon as feasible on those portions of the Project site where construction has temporarily or permanently ceased.
    - Place covers over stockpiles prior to forecasted storm events and during windy conditions as necessary to prevent erosion of stockpiles. Place sediment controls (e.g., fiber rolls, straw bales, silt fencing) around the perimeter of stockpiled materials to control sediment runoff.
    - Maintain sufficient erosion control materials on-site to allow implementation of erosion control measures in conformance with National Pollutant Discharge Elimination System (NPDES) storm water permit requirements and as described in

the SWPPP. This includes implementation requirements for active areas and non-active areas that require deployment before the onset of rain.

- Promptly repair and reapply controls according to BMPs in areas where erosion is evident.

- During the rainy season:
  - Implement temporary erosion control measures at regular intervals throughout the defined rainy season and as needed for site-specific conditions.
  - Inspect and stabilize disturbed areas with temporary or permanent erosion control measures before rain events.

- During the non-rainy season a combination of the following erosion controls may be used at the site:
  - Scheduling
  - Preservation of existing vegetation
  - Hydromulch
  - Straw mulch
  - Geotextiles and mats
  - Earth dikes and drainage swales
  - Velocity dissipation devices
  - Slope drains
  - Streambank stabilization

BMPs will be deployed in a sequence to follow the progress of grading and construction. As the locations of soil disturbance change, erosion controls will be adjusted accordingly to control storm water runoff at the down gradient perimeter.

4.4.6.11.2 Wind Erosion Control Measures. The Project will implement the following practices for wind erosion control:

- Year-round:
  - Minimize vegetation removal and grading to the extent practicable.
  - Apply water to disturbed soil areas of the Project site to control dust and maintain optimum moisture levels for compaction as needed. Apply the water using water trucks. Minimize water application rates as necessary to prevent runoff and ponding.

- During windy conditions (forecast or actual wind conditions of approximately 25 miles per hour or greater), apply dust control to haul roads to adequately control wind erosion. Cover exposed stockpiled material areas, as necessary.
- Suspend excavation and grading during periods of high winds when dust cannot be reasonably controlled.
- Cover all trucks hauling soil and other loose material or maintain at least 2 feet of freeboard.

4.4.6.12 Revegetation and Restoration

A plan for the revegetation and restoration of disturbed areas of the Project site will be prepared prior to construction. The revegetation plan will be implemented during and immediately after construction for the areas that are temporarily disturbed.

4.4.6.13 Landscaping along SR-138

A plan for installing a vegetated strip, 10 feet wide, consisting of native shrubs and Joshua trees or other yucca species just outside the AV Solar Ranch One PV facility fence lines north and south of SR-138 will be prepared prior to construction. The landscaping and temporary drip irrigation system will be installed within 14 months of the commencement of Project construction activities adjacent to the facility perimeter fences along the SR-138 corridor. As indicated on Figure 4.4-1A (Facility Site Plan), there is an approximately 120-foot setback between the centerline of SR-138 and the facility fence lines north and south of the highway. The Applicant plans to install native vegetation consisting of native shrubs (e.g., Great Basin sage, rabbit brush, and four-wing salt brush) inter-dispersed with Joshua trees and/or other yucca species in an approximately 10-foot-wide strip along the outside edge of the fence lines. The primary purpose of the proposed landscaping is to help screen the fence line and facility from motorists travelling along SR-138 using drought tolerant, native vegetation. The landscaping will involve planting of native vegetation from a local nursery source and watering using drip irrigation, as necessary (e.g., for one to two years), to facilitate successful establishment. The temporary drip irrigation water requirements are estimated to be up to 3 AFY (up to two years) and are included in the construction water usage rate estimate of 150 AFY. Following installation, the landscaped areas along the fence line (north and south of SR-138) will be maintained and monitored to promote successful, long-term establishment of the native vegetation. It is expected that the landscaping (drought tolerant, native vegetation) would become established within two years following planting and that long-term drip irrigation would not be required. However, up to 3 AFY of additional water may be needed in the first two years of operation for supplemental planting to account for failure of some of the initial plantings. It is considered unlikely, but possible, that

additional water (up to 3 AFY) may be needed later during the operation phase for supplemental plantings if landscape vegetation expires and needs to be replaced.

4.4.7 Operations and Maintenance

4.4.7.1 Facility Operations

O&M activities associated with a PV power generating facility are minimal compared to conventional power plants. The Project will operate during daylight hours only and will require approximately 16 full-time personnel for operation, maintenance, and security.

Typically, the plant operators will work 9-hour days. Plant management and administrative staff will typically work 8-hour days, Monday through Friday. However, weekend and night shifts may be required depending on maintenance requirements. Security and some maintenance staff will be on-site on a 24-hour basis. At times when non-routine maintenance or major repairs are in progress, the maintenance force may work longer hours and contract labor may be utilized as necessary.

Daily operation of the plant will commence when there is sufficient sunlight to begin operation of the solar trackers. The panels will be facing east in the morning and rotate on a single axis to follow the sun throughout the day. In the evening, the trackers will be rotated back to the east using power from the electrical grid so that the panels are once again in position to receive the morning sun.

Water use during operations is expected to be approximately 12 AFY of water for domestic, process water, and fire protection. Domestic use will include restrooms, kitchenette, showers, and other employee uses. Process water will be required for maintenance uses, the primary component of which will be the washing of solar panels.

Fire protection measures include sprinkler systems in the O&M building, and portable CO_2 fire extinguishers will be mounted outside inverter/electrical distribution containers or pads throughout the solar array. A FM200 fire suppression system, or equivalent, will be used in the plant control room and electrical/control rooms. An approximately 100,000-gallon process water tank will be located on the site in the vicinity of the O&M building (see Figure 4.4-5A). A minimum of 90,000 gallons will be reserved for firefighting at all times. The actual tank size will be based on Los Angeles County Fire Department requirements for firewater storage. A separate 10,000-gallon firewater tank will be located near the site entrance along 170th Street West, south of SR-138.

4.4.7.2 Maintenance

Long-term maintenance schedules will be developed to include periodic maintenance and equipment replacement in accordance with manufacturer recommendations. No heavy equipment will be used during normal Project operation. Operation and maintenance vehicles will include trucks (pickups, flatbeds, dump trucks), forklifts, and loaders for routine and unscheduled maintenance, and water trucks for solar panel washing. Large heavy-haul transport equipment may be brought to the site infrequently for equipment repair or replacement. The primary maintenance activities that will occur during operations include the following:

- Solar panels are warranted for 20 years and are expected to have a life of 30 or more years, with a degradation rate of 0.5 percent per year. Moving parts, such as motors and tracking module drive equipment, motorized circuit breakers and disconnects, and inverter ventilation equipment, will be serviced on a regular basis, and unscheduled maintenance will be conducted as necessary.
- Water will be sprayed on the PV panels periodically to remove dust and contaminants to maintain efficient conversion of sunlight to electrical power. The cleaning interval will be determined by the rate at which electrical output degrades between cleanings. Currently, it is expected that panel cleaning will be required approximately twice per year, which equates to an estimated 9 AFY of panel wash water.
- Project operations will include implementation of a vegetation management program. Along the transmission line, clearances for vegetation will be maintained in accordance with Public Utilities Commission General Order 95 (Rules for Overhead Electric Line Construction). Within the solar array and Project facilities, vegetation maintenance will be periodically performed by mechanical methods and use of herbicides, as described below:
    - Vegetation will be cut annually in the spring (mid- to end of April to allow for natural plant reseeding) to a height of 6 inches or less above the ground surface and will be maintained approximately at this height throughout the summer and fall fire season. Grasses and wildflowers will be allowed to grow during late winter and early spring (February 1 through approximately mid-April) up to a maximum height of 18 inches to ensure that a seed supply is maintained to perpetuate vegetation.
    - Additional selective vegetation mowing or trimming may be performed at other times as required to: 1) minimize fire risk; 2) control vegetation to allow for equipment maintenance; and 3) keep vegetation from interfering with equipment operation.

  - Herbicides (as approved by LACDRP) may be used to control noxious weeds primarily after the first growing season following construction) or vegetation in areas where mechanical methods are restricted due to equipment or facilities.
  - A combination of herbicides and mechanical methods will be used to keep all fire breaks and interior, improved all-weather roads (i.e., 30-foot-wide access roads as well as applicable 20-foot-wide all weather roads within the solar arrays, as described in Section 4.4.2.3) free from vegetation as required by the Los Angeles County Fire Department. A description of the fire breaks and their locations may be found in Section 4.4.6.4 and Figure 4.4-1D.

- Infiltration basins will be maintained to allow them to continue to operate properly on a long-term basis following their construction. The basins will be allowed to revegetate passively following their construction or will be reseeded if necessary. Maintenance is expected to include periodic vegetation control (cut to 6 inches or less during the fire season) and basin cleanout to prevent infill with sediment. Sediment will be spread adjacent to the basins. Short-term stabilization and wind/water erosion protection for basins and banks will be provided by soil tackifers or similar material until vegetation growth can provide root structure and cover for long-term stabilization. Access to the areas between panels, both the rows with and without infiltration basins, will be by small maintenance vehicles such as pickup trucks. Vegetation in these areas including the infiltration basins, will be kept to 6 inches or less during the fire season (May through January) to avoid fire risk from maintenance vehicles and other maintenance activities.

As discussed in Section 4.2, the proposed site layout for AV Solar Ranch One includes a 100-foot setback from centerline on both sides of SR-138 to facilitate Caltrans potential future widening of SR-138 (refer to Figure 4.4-1A). The Applicant will offer sufficient land for dedication to Caltrans that, along with the existing road right-of-way, will provide a total right-of-way width of 200 feet, as described in Section 4.2. The exact location of the right-of-way will be determined by Caltrans. The applicant will also offer to the County a 10-foot-wide irrevocable slope easement adjacent to the Caltrans easement on both sides of SR-138, as required by Los Angeles County. The applicant would be responsible for maintenance of the setbacks along SR-138 outside the existing Caltrans right-of-way until the additional right-of-way is dedicated to Caltrans. The applicant would also be responsible for maintenance of the 10-foot slope easement until the County installs improvements.

The Applicant will maintain the 10-foot strip of landscaped screening vegetation along the facility fence line on both sides of SR-138 to be free of trash and debris on an as-needed basis.

4.4.7.3 Hazardous Material Handling and Storage

Limited quantities of hazardous materials will be used and stored on-site for operation and maintenance. These materials will include oils, lubricants, paints, solvents, degreasers and other cleaners, FM200 fire suppressant, and transformer mineral oil, as shown in Table 4.4-5.

With the exception of the dielectric oil contained in the transformers, other hazardous materials will be stored in the O&M building. Flammable materials, such as paints and solvents, will be stored in flammable material storage cabinets with built-in containment sumps. The remainder of the materials will be stored on shelves, as appropriate. Due to the quantities involved, the controlled environment, and the concrete floor of the O&M building, a spill will be able to be cleaned up without adverse environmental consequences.

A HMMP will be developed for Project operations prior to turnover of the site from construction to operations. At a minimum the HMMP will include procedures for:

- Hazardous materials handling, use, and storage
- Emergency response
- Spill control and prevention
- Employee training
- Recordkeeping and reporting

4.4.7.4 Operations Waste Management

The primary waste generated at the Project site during operations will be nonhazardous solid waste. However, varying quantities of liquid non-hazardous waste and solid and liquid hazardous waste will also be generated. The types of wastes and their estimated quantities are discussed below.

4.4.7.4.1 Nonhazardous Solid Waste. The Project will produce nonhazardous solid waste that includes typical refuse generated by workers and small office operations such as rags, scrap metal, packing materials from deliveries, empty containers, sanitary wastewater solids, and other miscellaneous solid wastes. Large metal parts will be recycled. Other nonhazardous wastes will be recycled or disposed of in an appropriately licensed landfill. Estimated waste quantities are provided in Table 4.4-6.

4.4.7.4.2 Wastewater. The wastewater collection system will collect sanitary wastewater from sinks, toilets, and other sanitary facilities, and will be discharged to an on-site septic and leach field system as discussed in Section 4.4.2.5. Approximately 9 AFY will be used to

wash dust and dirt off the solar panels (two washings per year). This water will be nonhazardous and will be allowed to flow onto the ground.

4.4.7.4.3 Hazardous Waste. When depleted or used, limited quantities of the hazardous materials described in Section 4.4.7.3 may require disposal as hazardous waste. Typical Project hazardous solid and liquid waste streams generated during operations may include empty containers, spent batteries, oil sorbent and spent oil filters, oily rags, and used hydraulic fluid, oils, and grease. To the extent feasible, these wastes will be recycled; only permitted and licensed recycling facilities will be used. If recycling is not possible, some hazardous solid wastes may be disposed of at a permitted and licensed treatment and/or disposal facility. All hazardous wastes shipped off-site for recycle or disposal will be transported by a licensed and permitted hazardous waste hauler. Estimated waste quantities are provided in Table 4.4-5.

4.4.7.5 Health and Safety

All employees and contractors will be required to adhere to the appropriate health and safety plans and emergency response plans. All construction and operation contractors will be trained and required to operate under a health and safety program that meets industry and OSHA standards.

4.4.7.6 Site Security

The Project site will be secured with 7-foot chain-link fencing topped with three strands of barbed wire and an anti-perch "slack wire" for a total height of about 8 feet. Lighting will be provided at the O&M building, parking area, and the main plant access road and will remain on during nighttime hours. Lighting will also be provided at the substation, pumps, and other equipment areas, but these lights will normally be off unless there is activity in these areas; there will be no lighting within the solar array. Lighting will be directed downward and shielded to avoid light trespass in accordance with applicable County requirements (refer to Section 4.4.2.8). The Project site will be staffed 24 hours per day, seven days per week. This staff will include full time security, and regular security patrols will be conducted throughout the site. A perimeter security system may also be installed as necessary.

4.5 INTENDED USES OF EIR

The intended uses of this EIR include compliance with CEQA and to provide information needed by the Los Angeles County Regional Planning Commission and other County departments to make decisions regarding Project approvals and conditions. The EIR is also intended to support all federal, state, and regional and/or local government discretionary approvals that may be required to develop the proposed Project.

4.6 CUMULATIVE PROJECTS LIST

4.6.1 Introduction

In accordance with CEQA Guidelines (Title 14 California Code of Regulations [CCR] §15130 et seq.), this EIR presents an analysis of cumulative impacts that may result from construction and operation of the proposed Project. As defined in §15355, cumulative impacts refer to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. This section presents the cumulative projects basis for consideration in the cumulative impact analyses presented in Section 5.0 by environmental topic.

The cumulative impact analyses in Section 5.0 consider a number of variables including geographic (spatial) limits, time (temporal) limits, and the characteristics of the resource being evaluated. The geographic study area of each analysis is based on the nature of the geography surrounding the proposed Project, the characteristics of each resource, and the region to which they apply. In addition, each project in a region will have its own implementation schedule, which may or may not coincide or overlap with the proposed Project's schedule. For reference, the proposed AV Solar Ranch One Project is planned to be under construction between the fourth quarter of 2010 through the fourth quarter of 2013. The proposed off-site 230-kV transmission line is currently planned to be constructed in the spring and summer months of 2011. Refer to Figure 4.4-13 (Project Construction Schedule) for more details.

4.6.2 Methodology

CEQA Guidelines (§15130[b][1]) recommend two methodologies for establishing the cumulative impact scenario. One approach is to use "a list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency" (§15130[b][1][A]). Another approach is to use "a summary of projects contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or area-wide conditions contributing to the cumulative impact" (§15130[b][1][B]).

This EIR considers a combination of both methodologies to provide a tangible understanding and context for analyzing the potential cumulative effects of the proposed Project. The geographic boundary was established to include a review of applicable projects within 5 miles of the proposed Project site and off-site transmission line route. Additionally, based on coordination with the LACDRP, the cumulative resource study area was expanded to include a review of projects within the City of Lancaster, the Centennial master planned community along SR-138, and the community of Gorman near the intersection of SR-138 and I-5.

The cumulative scenario was developed through a review of active project lists (as of September 2009) from LACDRP, Kern County Planning Department, City of Lancaster, California Energy Commission (CEC), the California Independent System Operator (CAISO) interconnection queue and the U.S. Bureau of Land Management (BLM). The cumulative impact basis presented herein also considers planning documents, including general plans, area plans, specific plans, and previously certified EIRs, and Southern California Association of Governments (SCAG) growth projections.

4.6.3 Cumulative Projects

Refer to Table 4.6-1 for a tabular listing of projects and planning areas identified that are considered in the Project cumulative impact analysis. The locations of the cumulative projects considered are shown on Figure 4.6-1. The list of cumulative projects to be considered in this EIR was developed in September 2009 to facilitate completion of the necessary assessments following issuance of the AV Solar Ranch One EIR Notice of Preparation in April of 2009. Refer to Section 5.0 for assessments of potential cumulative impacts by environmental resource topic.

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TABLE 4.4-1
ESTIMATED GRADING/CUT AND FILL AND NON-GRADING RELATED EXCAVATED MATERIAL BALANCE

Activity	Cut (Yd^3)	Fill (Yd^3)	Δ Cut – Fill (Yd^3)
ON-SITE GRADING RELATED CUT AND FILL			
Permanent 30-foot-wide roads	50,000	54,000	-4,000
Well basin Area A	4,100	5,700	-1,600
Well basin Area B	2,100	1,000	1,100
Substation area (swale and berms)	650	7,200	-6,550
Equipment pad foundation	0	810	-810
Infiltration trenches Solar Fields 1–6	111,000	111,000[1]	0
Infiltration basin near substation area	1,048	0	1,048
Infiltration basin near O&M facility	1,048	0	1,048
Drive motor foundations	10,050	0	10,050
Total on-site grading/cut and fill	179,996	179,710	286
ON-SITE EXCAVATIONS (Non-grading Related)			
Underground 34.5-kV (AC/DC) trenches	58,700	58,700	0
Water pipeline	7,930	7,930	0
Overhead 34.5-kV pole foundations	131	0	131
Overhead 230-kV (on-site) pole foundations	560	0	560
Total on-site excavations	67,321	66,630	691
Total On-site Grading/Cut and Fill and Non-grading Excavation Quantities	247,317	246,340	977
OFF-SITE EXCAVATIONS (Non-grading Related)			
Overhead 230-kV (off-site) pole foundations	2,016	2,016[2]	0
Total On-site and Off-site Grading/Cut and Fill and Non-grading Excavation Quantities	249,333	248,356	977

[1] The fill listed for solar field infiltration trenches would be spoils banks created between trenches with the cut material.

[2] The fill listed for the off-site 230 kV pole foundations would consist of about 56 cubic yards of augered material spread on the surface in the vicinity of each pole location.

TABLE 4.4-2
ESTIMATED DISTURBED AREA SUMMARY

Project Component Item	Area			Approximate Length (Miles)	Comments
	Temporary Construction Disturbance[1] (Acres)	Permanent Disturbance[2] (Acres)	Total Disturbance (Acres)		
230-kV Transmission Line (Off-site and On-site)					
Off-site transmission line construction areas	5.1	--	5.1	3.5	36 poles (100' x 50' for each pole); 4 stringing sites (50' x 200')
Off-site transmission line access pathways	--	0.7	0.7	0.3	21 pathways (up to 20 wide; total length ~1,441')
Off-site tubular steel poles	--	0.04	0.04	--	36 poles (~ 8' diameter including foundation)
On-site transmission line construction areas	1.4	--	1.4	0.75	10 poles (100' x 50' for each pole) 1 stringing site (50' x 200')
On-site tubular steel poles	--	0.01	0.01	--	10 poles (~8' diameter including foundation)
Subtotal	6.5	0.75	7.25	--	
Plant Development, Staging/Laydown Areas, Boundary Fence, and Landscaping					
Construction staging areas	100	--	100	--	15 areas
Construction laydown areas	25	--	25	--	41 areas
Site boundary fence line	3	10	13	14	Partially located within disturbed fire break area
SR-138 Landscaping	--	3	3	2.5	10' width; native vegetation
Site paved roads	--	1.5	1.5	--	O&M facility entrance and parking
O&M facility	--	0.5	0.5	--	O&M building and warehouse
O&M facility construction area	6	--	6	--	Temporary concrete batch plant, 2 temporary assembly areas, leach field, and layout area
Subtotal	134	15	149		

TABLE 4.4-2 (CONTINUED)
ESTIMATED DISTURBED AREA SUMMARY

Project Component Item	Area			Approximate Length (Miles)	Comments
	Temporary Construction Disturbance[1] (Acres)	Permanent Disturbance[2] (Acres)	Total Disturbance (Acres)		
On-site Utilities					
High voltage substation	--	3	3	--	350' x 350' substation area and 50' x 200' drainage basin
34.5-kV overhead collection lines	0	--	0	3	No additional disturbance; will be located within disturbed fire break area
34.5-kV underground DC lines	4	--	4	12.5	~3' wide disturbance area inclusive of trench
34.5-kV underground AC lines	4	--	4	12.5	~3' wide disturbance area inclusive of trench
Water supply line	<0.5	--	<0.5	2.2	Trenching (~3' wide within permanent access roads), and bore pits
Subtotal	8.5	3	11.5	--	
Solar Field Development					
East-west temporary construction access roads	96	--	96	66	~12' width
Unpaved permanent access roads	--	100	100	27	~30' width
Unpaved permanent access pathways	--	96	96	66	~12 width
Tracker ballast foundations	--	68	68	--	~165,000 units; 18 feet^2/unit
Tracker drive foundations	--	3	3	--	~1,600 units; 84 feet^2/unit
Electrical equipment pads	--	2	2	--	~185 units; 580 feet^2/unit
Infiltration basins and spoils banks	--	250[3]	250[3]	--	~9,600 infiltration basin and spoils banks; also 1 basin each at substation and O&M facility

TABLE 4.4-2 (CONTINUED)
ESTIMATED DISTURBED AREA SUMMARY

Project Component Item	Area			Approximate Length (Miles)	Comments
	Temporary Construction Disturbance[1] (Acres)	Permanent Disturbance[2] (Acres)	Total Disturbance (Acres)		
Fire breaks	--	213	213	--	
Subtotal	96	732	828		
Total Disturbed Area[4]	**245**	**751**	**996**[4]	--	

1 Temporary construction disturbance numbers are a subset of total construction disturbance in order to distinguish site acreage that would be subjected to ground disturbance only during the construction phase. These areas would be expected to revegetate following the completion of construction.

2 Permanent disturbance category includes acreage that would be covered by permanent Project facilities and components and/or be subject to ongoing ground disturbance.

3 Infiltration basins and associated spoils piles would be allowed to vegetate but would be subjected to periodic maintenance as required (see Section 4.4.7.2). These areas are considered to constitute "permanent" disturbance in this EIR. The number of infiltration basins required may vary depending on the final Project design.

4 The total area estimated to be subject to direct ground disturbance during construction of the proposed Project, including the off-site 230-kV transmission line, is approximately 996 acres. Additionally, the entire site with the exception of avoidance areas (i.e., Drainages A, B, and C; and Joshua Tree Recruitment Area) would be subject to initial vegetation mowing and shrub removal except for avoidance areas (approximately 108 acres). Additionally, approximately 1,369 acres would be subject to long-term vegetation maintenance (mowing) to meet Los Angeles County Fire Department requirements.

TABLE 4.4-3
HAZARDOUS MATERIALS USED DURING CONSTRUCTION

Material	Application	Storage Location	Estimated Quantity
Diesel fuel and gasoline	Refueling construction equipment and vehicles	Refueling truck	4,000 gallons
Lubricating oil	Vehicle and equipment maintenance	Refueling truck	400 gallons
Various solvents, detergents, degreasers, paints, and other cleaners	Construction activities, equipment maintenance, and cleaning	Warehouse/shop area	132 gallons
Ethylene glycol	Vehicle and equipment engine coolant	Refueling truck	132 gallons

TABLE 4.4-4
WASTES GENERATED DURING CONSTRUCTION[1,2]

Waste	Origin	Composition	Classification	Estimated Quantity	Disposal
Scrap wood, scrap metals, glass, plastic, paper	Construction activities	Normal refuse, parts, containers	Nonhazardous	39 cubic yards per week	Recycle and/or dispose of in a Class II or III landfill
Vegetation debris	Site clearing and grubbing	Brush, grasses, and scrub	Nonhazardous	2,700,000 cubic yards[2]	Chipped/mulched and spread on-site or disposed of in appropriate landfill
Empty hazardous material containers	Construction activities	Drums, containers, totes[3]	Hazardous and nonhazardous solids	1.3 cubic yards per week	Containers <5 gal will be disposed as normal refuse. Containers >5 gal will be returned to vendors for recycling or reconditioning
Waste oil filters	Construction equipment and vehicles	Solids	Nonhazardous	1.3 cubic yards per week	Drain and recycle at a permitted TSDF
Used and waste lube oil	Vehicle and equipment maintenance	Hydrocarbons	Hazardous	5.25 gallons per week	Recycle at a permitted TSDF
Oily rags, oil sorbent excluding lube oil flushes	Cleanup of small spills	Hydrocarbons	Hazardous	1.3 cubic yards per week	Recycle or dispose at a permitted TSDF
Solvents, paint, adhesives	Maintenance	Solids and liquids	Hazardous	1.3 cubic yards per week	Recycle at a permitted TSDF
Spent lead acid batteries	Construction machinery	Heavy metals	Hazardous	3 per year	Store no more than 10 batteries (up to 1 year) – recycle off-site
Spent alkaline batteries	Equipment	Metals	Universal waste solids	10 per month	Recycle or dispose off-site at an Universal Waste Destination Facility
Sanitary waste	Portable toilet holding tanks	Solids and liquids	Nonhazardous liquid	396 gallons per day	Remove by contracted sanitary service

1 Total amount of solid waste generated is approximately 68,952 tons per year as calculated using conversion factor from EPA 1997, Publication No. EPA530-R-97-011.

2 Total amount of one-time generation of vegetative debris is approximately 63,450 tons as calculated using conversion factor from California Integrated Waste Management Board 2009. Diversion Study Guide. Appendix I.

3 Containers include <5-gallon containers and 55-gallon drums or totes.

TABLE 4.4-5
HAZARDOUS MATERIALS USED DURING OPERATIONS

Chemical	Use	Storage Location	State	Storage Quantity
Various solvents, Cleaning Chemicals/Detergents, paints and other cleaners, oils, lubricants	Building maintenance and periodic cleaning	Warehouse/shop area	Liquid	Commercial 1- and 5-gallon containers
FM-200	Fire protection	Warehouse/shop area	Gaseous	15,000 pounds
Dielectric transformer insulating oil	Transformers/switchyard	Contained within transformers and electrical switches	Liquid	84,000 gallon total

TABLE 4.4-6
WASTES GENERATED DURING OPERATIONS[1]

Waste	Origin and Composition	Classification	Estimated Quantity	Disposal
Office and packaging materials from supplies deliveries	Office and warehouse paper, wood, plastic, and cardboard	Non-hazardous	Intermittent – 4 cubic yards per week	Weekly collection for recycling and/or recycling and/or approved waste disposal
Sanitary wastewater solids	Restrooms, Sanitary waste	Non-hazardous	2,000 gallons per week	Dispose to sanitary leach field
Spent batteries	Lead acid, alkaline, gel cell, nickel, and cadmium	Hazardous, recyclable	<5 units per week	Store for less than 30 days. Dispose to authorized waste recycling facility
Oily absorbent and spent oil filters	Vehicle and equipment maintenance	Hazardous	One 55-gallon drum per quarter	Store for less than 90 days, dispose to authorized recycle facility
Oily rags	Vehicle and equipment maintenance	Hazardous	One 55-gallon drum per quarter	Store for less than 90 days, dispose to authorized recycle facility
Used hydraulic fluid, oils and grease	Vehicle and equipment maintenance	Hazardous, recyclable	Less than 5 gallons per month	Store for less than 90 days, dispose to authorized recycle facility

[1] Total amount of solid waste generated is approximately 31 tons per year as calculated using conversion factor from EPA 1997, Publication No. EPA530-R-97-011.

TABLE 4.6-1
AV SOLAR RANCH ONE CUMULATIVE PROJECTS/SCENARIOS CONSIDERED

Map ID[1]	Project Type	Project/Plan Name	Description	Acres	Jurisdiction	Timeframe/Status	Location	Project/Plan Proponent
Projects Within 5 Miles of AV Solar Ranch One Site								
1	Recreation/ commercial	Fairmont Butte Motorsports Park Project	Motor recreational (racetrack) facility encompassing 320 acres. Facility includes 186,808 sq ft of appurtenant facilities, such as an administration building, servicing units, 2 caretaker houses, a restaurant, and garages.	320	Los Angeles County	DEIR released July 2009; construction anticipated in July 2010, and operation in December 2012.	Located approximately 0.5 mile east of Project site; bounded by SR 138 to the north, 155th Street West to the west, 150th Street West to the east, and open space to the south.	Unspecified
2	Public services	Antelope Valley Water Bank Project	Project to develop facilities to recharge and store imported surface water beneath properties in the Antelope Valley. Project area spans across approximately 13,440 acres, and requires construction of wells, facilities, and accessory structures for water transportation.	13,440	Kern County	Project Approved 2006.	Area proposed for recharge and recovery facilities is bounded by Rosamond Blvd to the north, Avenue A (south), 170th Street West (west), and 100th Street West (east).	Western Development and Storage, LLC
3	Energy	Tehachapi Renewable Transmission Project	Proposed transmission system improvements to deliver electricity from renewable energy projects in Kern County to Los Angeles Basin.	--	CPUC	DEIR/S issued Feb 2009; construction anticipated in 2009 and end in 2013.	Project area traverses portions of Kern, Los Angeles, Riverside County, and San Bernardino counties, and the ANF.	Southern California Edison

TABLE 4.6-1 (CONTINUED)
AV SOLAR RANCH ONE CUMULATIVE PROJECTS/SCENARIOS CONSIDERED

Map ID[1]	Project Type	Project/Plan Name	Description	Acres	Jurisdiction	Timeframe/Status	Location	Project/Plan Proponent
11	Renewable energy	Pacific Wind Energy Project	Proposed wind energy facility to generate up to 250 MW, with proposed interconnection into Whirlwind Substation.	8,300	Kern County	NOP issued September 30, 2009	Project site is generally bound on the north and west by the Tehachapi Mountains, to the south by Patterson Road, and to the east by 160th Street West.	enXco Development Corporation
4	Large-scale planned community	Willow Springs Specific Plan	Specific plan for mixed use development in Kern County.	--	Kern County	Residential housing subdivision approved as part of specific plan.	South Kern County, from Avenue A to Dawn Road and 50th Street West to 190th Street West.	Kern County
6	Transportation	North County Highway Corridor Plan	Proposed regional transportation plan to expand SR-138 into a 6-lane expressway, and improve corridor integration on I-5 and SR-14.	Across 250 miles	California Department of Transportation	Improvements to I-5 and SR-14 expected around 2020 and 2025; SR-138 expansion to be implemented after 2030.	North Los Angeles County	Multiple local and state agencies
City of Lancaster								
5	Infill/ redevelopment	Proposed developments in redevelopment areas	Development summary consists of: total of 11,630 residential units; 385 acres public facilities; 379 acres commercial development, 163 acres industrial development, and 17 acres mixed uses.	--	City of Lancaster	Development Summary Report (current as of July 2009).	City of Lancaster, within redevelopment areas: Residential Project Area; Central Business District; Fox Field Project Area; Amargosa Project Area; and Project Areas 5, 6, and 7.	Various

TABLE 4.6-1 (CONTINUED)
AV SOLAR RANCH ONE CUMULATIVE PROJECTS/SCENARIOS CONSIDERED

Map ID[1]	Project Type	Project/Plan Name	Description	Acres	Jurisdiction	Timeframe/Status	Location	Project/Plan Proponent
5,10	Infill	Proposed developments (excludes redevelopment areas)	Development summary indicates: total of 11,279 residential units; 73 acres public facilities; 134 acres commercial development, 104 acres industrial development, and 73 acres mixed uses. Infill development includes Sierra Demonstration Plant (Map ID #10), which is a solar thermal test site occupying 95 acres in the City of Lancaster. The facility can generate a maximum of 7.5 MW and has been operating since 2009.	--	City of Lancaster	Development Summary Report (current as of July 2009).	City of Lancaster, outside of redevelopment areas.	Various
7	Transportation	California High Speed Rail	Proposes 800 mile statewide high-speed train system from Sacramento to San Diego.	--	California Department of Transportation	Construction of Southern CA segment is proposed to begin as early as 2011.	A portion of the Southern California route would traverse the Cities of Lancaster and Palmdale about 15 miles east of Project site.	California High-Speed Rail Authority

TABLE 4.6-1 (CONTINUED)
AV SOLAR RANCH ONE CUMULATIVE PROJECTS/SCENARIOS CONSIDERED

Map ID[1]	Project Type	Project/Plan Name	Description	Acres	Jurisdiction	Timeframe/Status	Location	Project/Plan Proponent
Centennial Specific Plan								
8	Master planned community	Centennial Specific Plan	Master Plan Community of up to 23,000 dwelling units, and 14 million total square feet of non-residential development, including commercial facilities, 3 schools, 1 golf course, open space areas, and roads.	12,000	Los Angeles County	EIR NOP issued March 2004; Project build-out over 20 years.	Northwestern portion of the Antelope Valley, 1 mile east of I-5 and immediately adjacent to the north and south of SR-138.	Centennial Founders, LLC
Community of Gorman								
9	Large-scale planned community	Gorman Post Ranch	Residential development consisting of 533 single family units on 2,725.38 acres.	2,725	County of Los Angeles	NOP issued 1/10/07; EIR in progress.	Northwest corner of unincorporated Los Angeles County just south of Kern County. The site is located on Gorman Post Road, between Gorman School Road and Lancaster Road (SR-138), just northeast of I-5 and southeast of Gorman.	Gorman Post Ranch, LLC

TABLE 4.6-1 (CONTINUED)
AV SOLAR RANCH ONE CUMULATIVE PROJECTS/SCENARIOS CONSIDERED

Map ID[1]	Project Type	Project/Plan Name	Description	Acres	Jurisdiction	Timeframe/Status	Location	Project/Plan Proponent
CAISO Interconnection Queue								
--	Renewable energy	Solar photovoltaic electric generation facility	Proposed solar photovoltaic electric generation project with a maximum capacity of 211.76 MW. Proposed interconnection into the planned SCE Whirlwind Substation.	--	Kern County	Current anticipated on-line date: December 2011.	Location unspecified in Kern County. Project not identified within 5 miles of the proposed AV Solar Ranch One Project site.	Unspecified
--	Renewable energy	Solar thermal electric generation facility	Proposed solar thermal generation project with a maximum capacity of 231 MW. Proposed interconnection into the SCE Antelope-Magunden 230-kV transmission line.	--	California Energy Commission	Authority to Construct not filed; anticipated on-line date: April 2011.	Kern County, location unspecified.	Unspecified
--	Renewable energy	Solar thermal electric generation facility	Proposed solar thermal generation project with a maximum capacity of 420 MW. Proposed interconnection into the planned SCE Whirlwind Substation.	--	California Energy Commission	Authority to Construct not filed; anticipated on-line date: October 2013.	Los Angeles County, location unspecified.	Unspecified

TABLE 4.6-1 (CONTINUED)
AV SOLAR RANCH ONE CUMULATIVE PROJECTS/SCENARIOS CONSIDERED

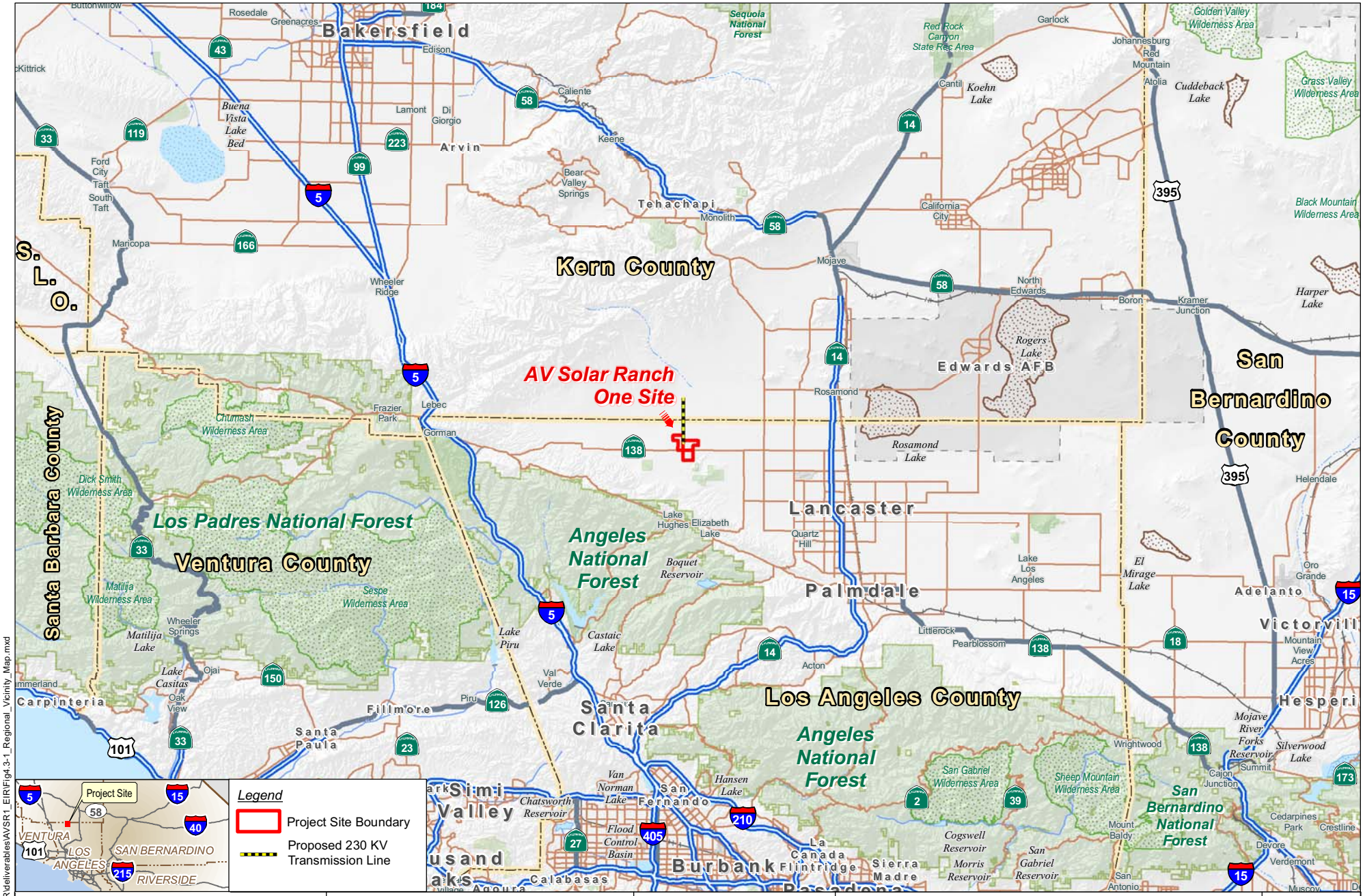
Map ID[1]	Project Type	Project/Plan Name	Description	Acres	Jurisdiction	Timeframe/Status	Location	Project/Plan Proponent
--	Renewable Energy	Wind electric generation facility	Proposed wind generation project with a maximum capacity of 100 MW. Proposed interconnection into the planned SCE Whirlwind Substation.	--	Kern County	Current anticipated on-line date: December 2012.	Location unspecified in Kern County. Project not identified within 5 miles of the proposed AV Solar Ranch One Project site.	Unspecified
--	Renewable Energy	Wind electric generation facility	Proposed wind generation project with a maximum capacity of 160 MW. Proposed interconnection into the planned SCE Whirlwind Substation.	--	Kern County	Current anticipated on-line date: December 2013.	Location unspecified in Kern County. Project not identified within 5 miles of the proposed AV Solar Ranch One Project site.	Unspecified
--	Renewable Energy	Wind electric generation facility	Proposed wind generation project with a maximum capacity of 250 MW. Proposed interconnection into the planned SCE Whirlwind Substation.	--	Kern County	Current anticipated on-line date: October 2010.	Location unspecified in Kern County. Project not identified within 5 miles of the proposed AV Solar Ranch One Project site.	Unspecified
--	Renewable Energy	Wind electric generation facility	Proposed wind generation project with a maximum capacity of 340 MW. Proposed interconnection into the planned SCE Whirlwind Substation.	--	Kern County	Current anticipated on-line date: December 2011.	Location unspecified in Kern County. Project not identified within 5 miles of the proposed AV Solar Ranch One Project site.	Unspecified

TABLE 4.6-1 (CONTINUED)
AV SOLAR RANCH ONE CUMULATIVE PROJECTS/SCENARIOS CONSIDERED

Map ID[1]	Project Type	Project/Plan Name	Description	Acres	Jurisdiction	Timeframe/Status	Location	Project/Plan Proponent
--	Renewable Energy	Wind electric generation facility	Proposed wind generation project with a maximum capacity of 500 MW. Proposed interconnection into the planned SCE Whirlwind Substation.	--	Kern County	Current anticipated on-line date: December 2014.	Location unspecified in Kern County. Project not identified within 5 miles of the proposed AV Solar Ranch One Project site.	Unspecified

[1] Refer to Figure 4.6-1 for general locations of cumulative projects considered, as available in September 2009.

Note: The EIR consultant (URS) was notified in late-February 2010 by the Los Angeles County Department of Regional Planning that a 650 MW solar project (Rosamond Solar Project proposed by Renewable Resources) is proposed in the community of Rosamond, which is more than 14 miles east of the proposed AV Solar Ranch One Project, including the transmission line. At the time that this Draft EIR was prepared, the Notice of Preparation (NOP) for the 650-MW project or project-specific information (i.e., project location, interconnection point, schedule, etc.) were not available.



Source:
[1] ESRI StreetMap USA (2006). [2] Hillshade, 30 Meter Resolution (based on the National Elevation Dataset (NED) - U.S. Geological Survey, Teale Data Center GIS Solutions Group, USFS Region 5.

AV Solar Ranch One EIR

Figure 4.3-1. REGIONAL VICINITY MAP

2010

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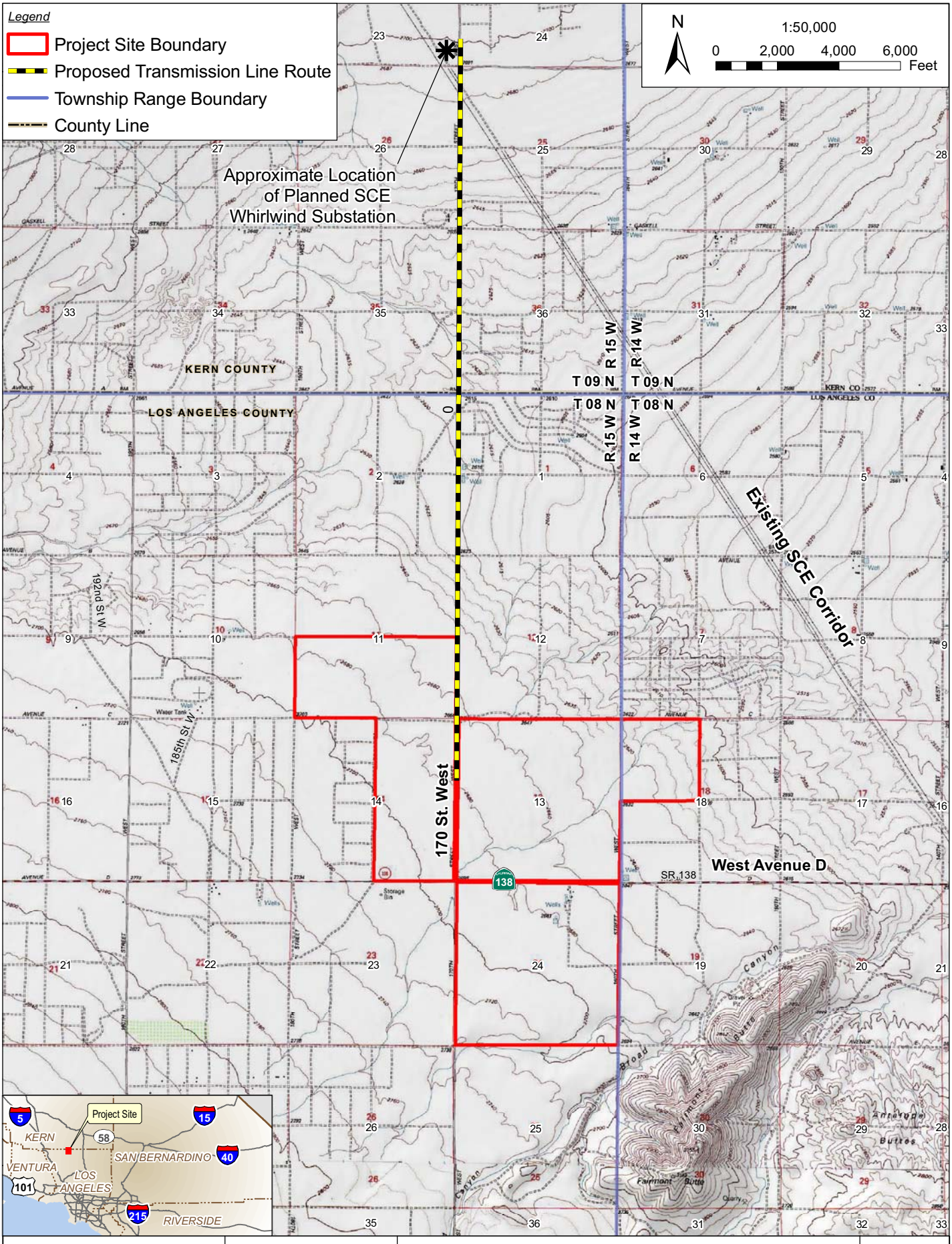

Source: [1] USGS 1:24,000-scale topographic map created with TOPO!, (c)2007 National Geographic Maps, All Rights Reserved, [2] ESRI StreetMap USA (2007).

AV Solar Ranch One EIR

Figure 4.3-2. SITE LOCATION TOPOGRAPHIC MAP

2010

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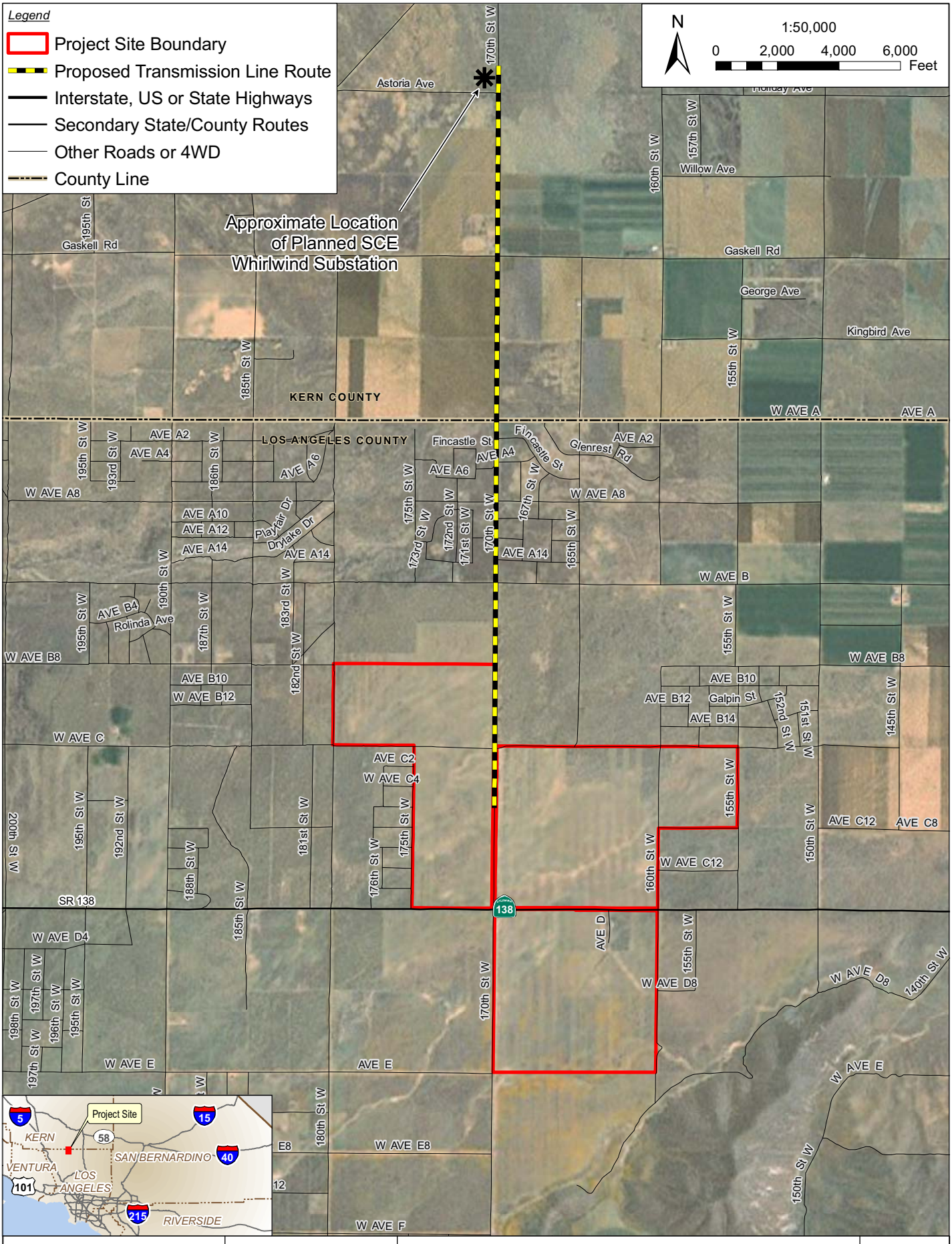

Source:
[1] I-cubed Nationwide Prime - Aerials Express (2007-02-15 image date, 0.3m resolution), [2] ESRI StreetMap USA (2007).

AV Solar Ranch One EIR

Figure 4.3-3. SITE LOCATION AERIAL MAP

2010

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Source: [1] TriAxis Engineering, Inc., [2] SEA: LA County Dept. of Regional Planning (http://planning.lacounty.gov/gis/download), [3] URS Santa Barbara 2010, [4] Image Source: Westwood Professional Services, 0.5 ft. resolution (2009).

AV Solar Ranch One EIR

Figure 4.3-4A. PROPOSED 230 KV TRANSMISSION LINE ROUTE AERIALS (Sheet 1 of 2)

2010

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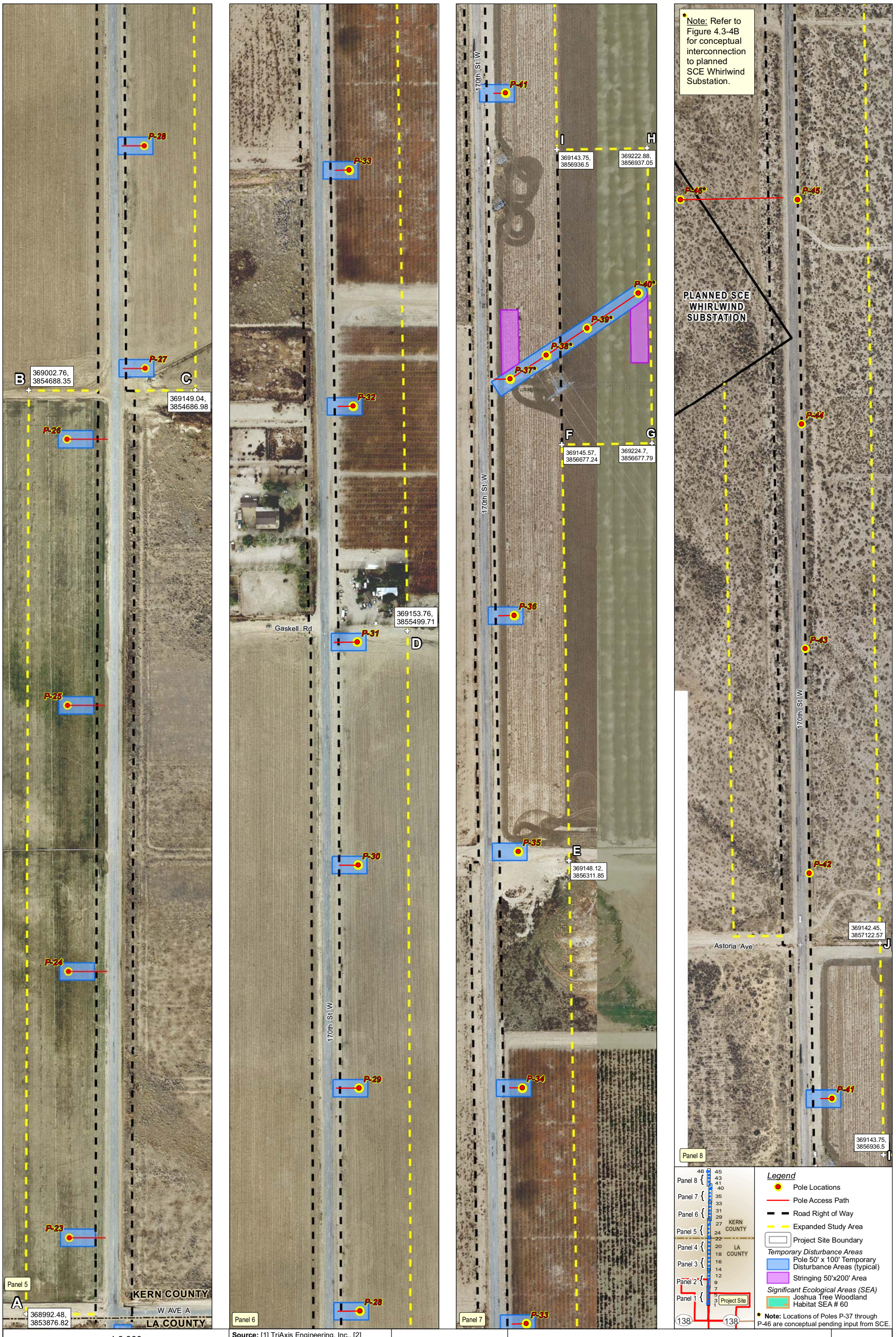

N

1:3,000

0 250 500 Feet

1 inch = 250 feet

Source: [1] TriAxis Engineering, Inc., [2] SEA: LA County Dept. of Regional Planning (http://planning.lacounty.gov/gis/download), [3] URS Santa Barbara 2010, [4] Image Source: Westwood Professional Services, 0.5 ft. resolution (2009), [5] USGS Orthoimagery-Kern County, CA - 0.333 ft. Apr 2008 .

AV Solar Ranch One EIR

Figure 4.3-4A. PROPOSED 230 KV TRANSMISSION LINE ROUTE AERIALS (Sheet 2 of 2)

2010

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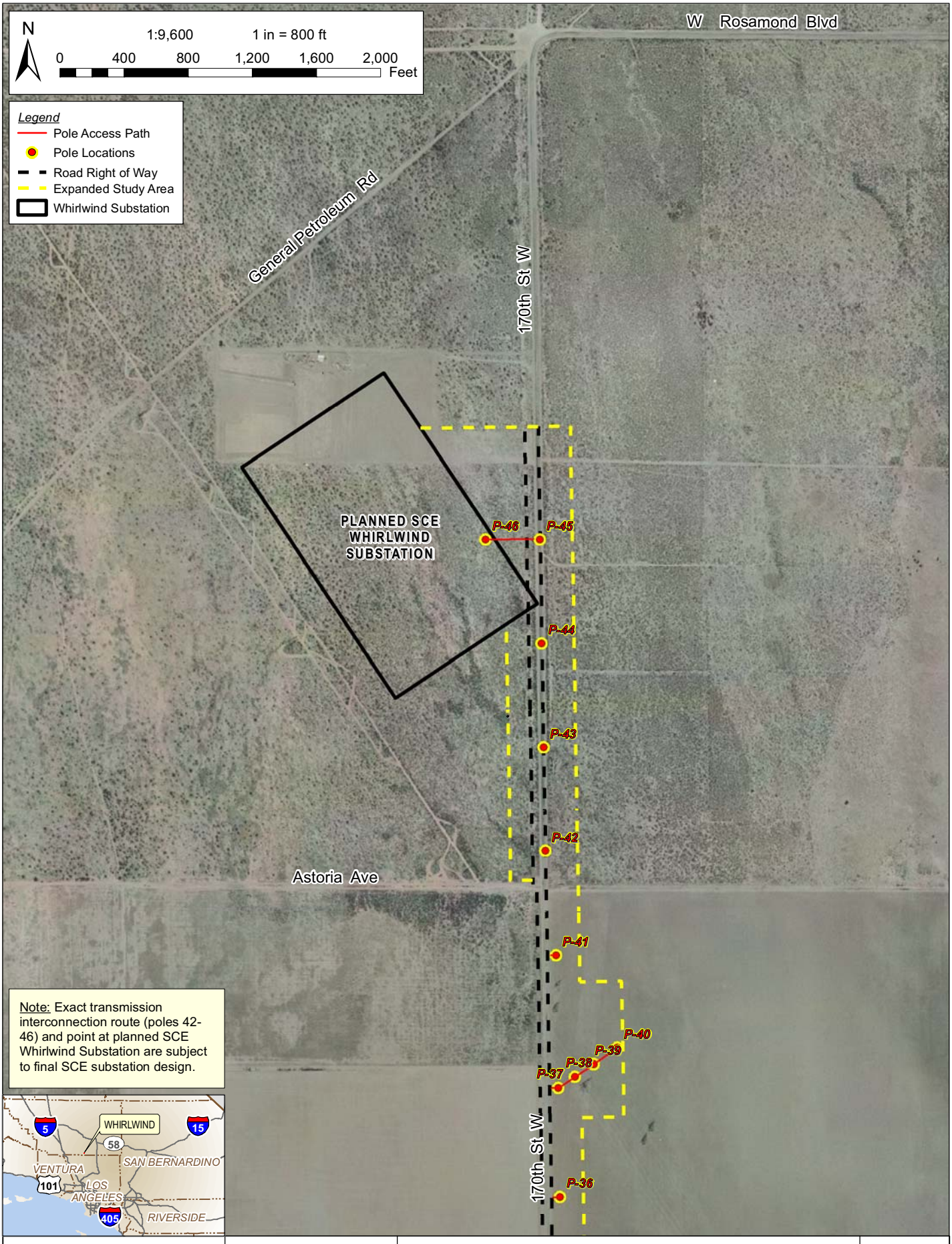

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Source: [1] TriAxis Engineering, Inc., [2] CPUC 2009. **Image Source:** I-cubed Nationwide Prime - Aerials Express (2007-02-15 image date, 0.3m resolution).

AV Solar Ranch One EIR

Figure 4.3-4B. PROPOSED 230 KV TRANSMISSION LINE ROUTE AERIALS

2010

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Minimum setback from property boundary to fence = 100 ft; to solar array = 130 ft.

Proposed 230 KV Transmission Line (approx 3.5 miles north)

Minimum setback from property boundary to fence = 70 ft; to solar array = 100 ft.

Minimum setback along W. Ave. C from property boundary to fence = 100 ft; to solar array = 130 ft.

Minimum setback from property boundary to fence = 100 ft; to solar array = 130 ft.

O&M Facility (see Figure 4.4-5A)

Substation (see Figure 4.4-5B)

Water Tank

Proposed Water Well

Water Tank

Inverter/Transformer Pads

Joshua Tree Recruitment Avoidance Area

Drainage D

Drainage A*

Proposed Water Line

Drainage B

Existing Wells

Existing Ranch Buildings to be Removed

Site Boundary

Permanent Internal Access Roads

Drainage C (with 65 ft wide county flood easement)

*Minimum setback along jurisdictional portion from top of bank on both sides of drainage to roads = 100 ft.

Setback from SR-138 Centerline to fence = 120 ft;

Minimum setback from property boundary to fence = 50 ft; to solar array = 80 ft.

Minimum setback from fence to FEMA Zone A = 100 ft.

180TH STREET WEST NOT IMPROVED

170TH STREET WEST

175TH STREET WEST NOT IMPROVED

155TH STREET WEST NOT IMPROVED

160TH STREET WEST NOT IMPROVED

WEST AVENUE C

WEST AVENUE C-8 (NOT IMPROVED)

STATE HIGHWAY 138 (WEST AVENUE D)

HIGHWAY CROSSING

Horizontal Trackers*

FEMA ZONE X, SHADED SEE NOTE 2 TYPICAL

FEMA ZONE A

FEMA ZONE X, UNSHADED

100 ft. wide

7869'–1"

2577'–9"

2635'–2"

2645'–4"

214'

67'–6" (TYP)

1257'–6"
68 TRACKER UNITS (MAX)

5288'–10"

5288'

5353'–2"

30' (TYP)

7972'–1"

2717'–1" (MAX)

S=0.8%

S=1%

S=1.2%

S=1.8%

S=2.5%

CDFG

SBCK

* Horizontal trackers will be used as indicated if tracker technology is selected. If fixed-tilt panels are selected, then the fixed-tilt panels, which have lower elevational relief compared to tracker units, will be used uniformly across the site.

LEGEND

- FEMA FLOOD PLAIN. THIS SURVEY IS BASED ON GRID COORDINATES DERIVED FROM A GPS SURVEY PROVIDED BY **WESTWOOD PROFESSIONAL SERVICES**
- FENCE
- 34.5 KV LINE
- 230 KV LINE
- PROPOSED 8" WATERLINE
- SETBACK AND SHEET PILING (CUT OFF WALLS) ALONG DRAINAGE A
- LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS EASEMENT
- CALIFORNIA DEPARTMENT OF FISH AND GAME JURISDICTIONAL DRAINAGE AREA
- POST-DEVELOPMENT DRAINAGE FLOW DIRECTION AND SLOPE
- EXISTING WATER WELL TO REMAIN
- ELECTRICAL RISER
- MAIN PROJECT ENTRY
- SECONDARY PROJECT ENTRY
- SUBSTATION
- SOLAR ARRAY (PV PANELS)

NOTES:

1. THE PROPOSED ARRAY LAYOUT SHOWN IS SUBJECT TO FINAL DESIGN & VERIFICATION OF ACTUAL SITE CONDITIONS.
2. ZONE X, SHADED AREA BETWEEN LIMITS ARE AREAS OF 0.2% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT. OUTSIDE LIMIT AREAS, ARE AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCES FLOOD PLAIN
3. ZONE A AREAS WITH A 1% ANNUAL CHANCE OF FLOODING AND A 26% CHANCE OF FLOODING OVER THE LIFE OF A 30-YEAR MORTGAGE. BECAUSE DETAILED ANALYSES ARE NOT PERFORMED FOR SUCH AREAS; NO DEPTHS OR BASE FLOOD ELEVATIONS ARE SHOWN WITHIN THESE ZONES
4. DECLINATION AT THE INTERSECTION OF HWY 138 & 170TH W. STREET
5. THIS DRAWING IS A REVISION TO SUNPOWER AV SOLAR RANCH ONE FACILITY SITE PLAN, AND MADE PER THE DIRECTION OF NEXTLIGHT RENEWABLE POWER, LLC

N

0 800 1600

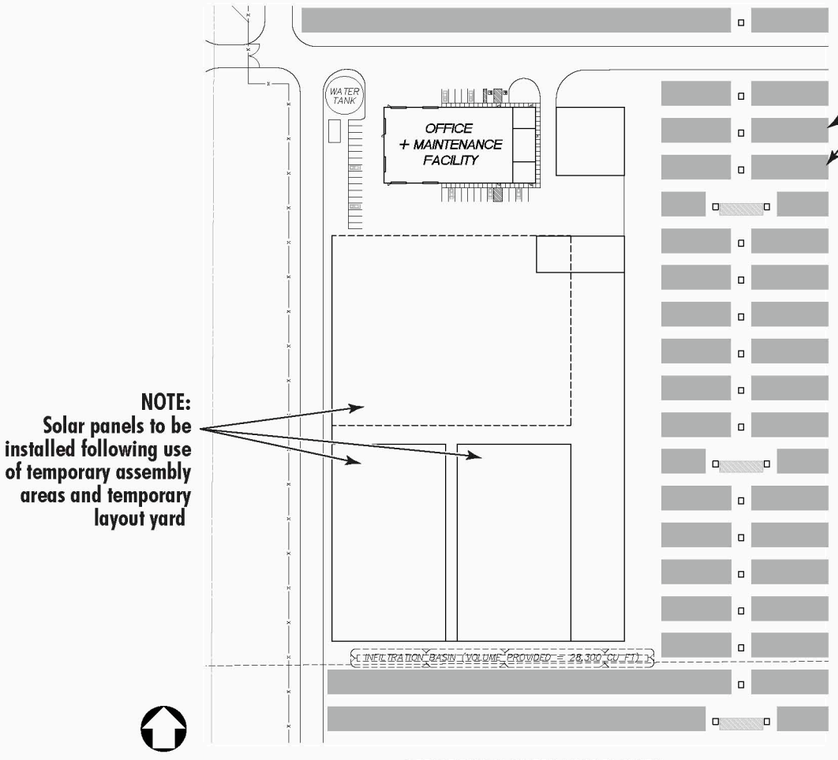
Source:
Psomas and Patch Services
Dated 2010
Adapted from Patch Drawings D-5408-2014 and D-5408-2001; NextLight 2010

AV Solar Ranch One EIR

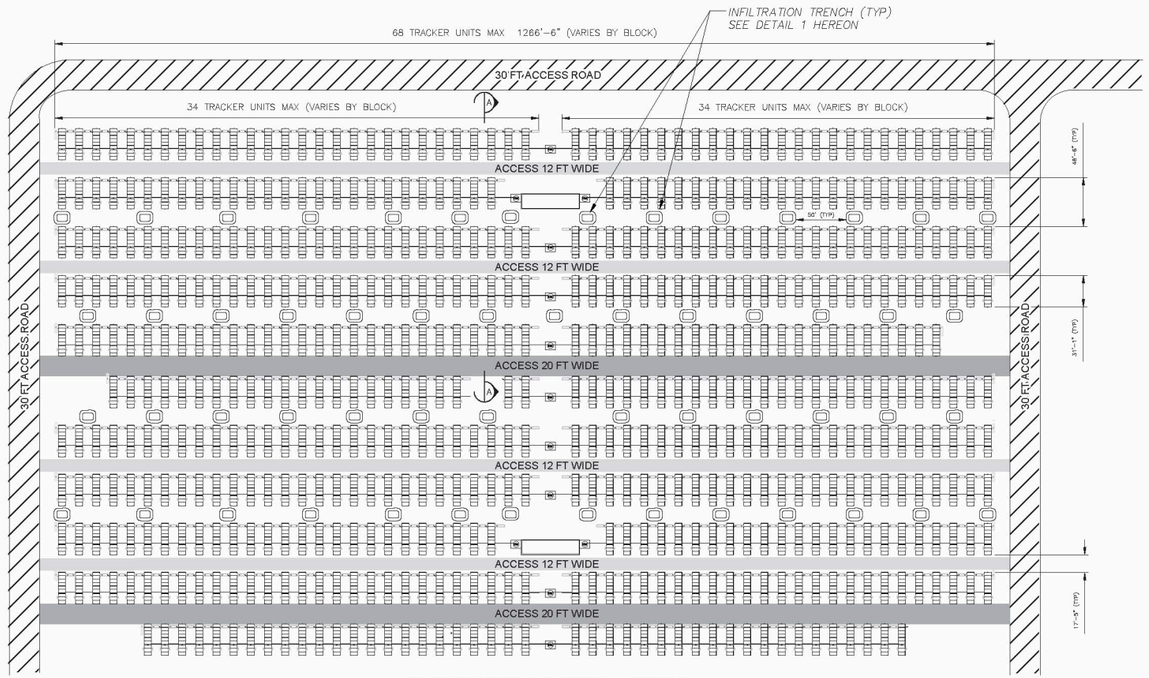
Figure 4.4-1A. FACILITY SITE PLAN

2010

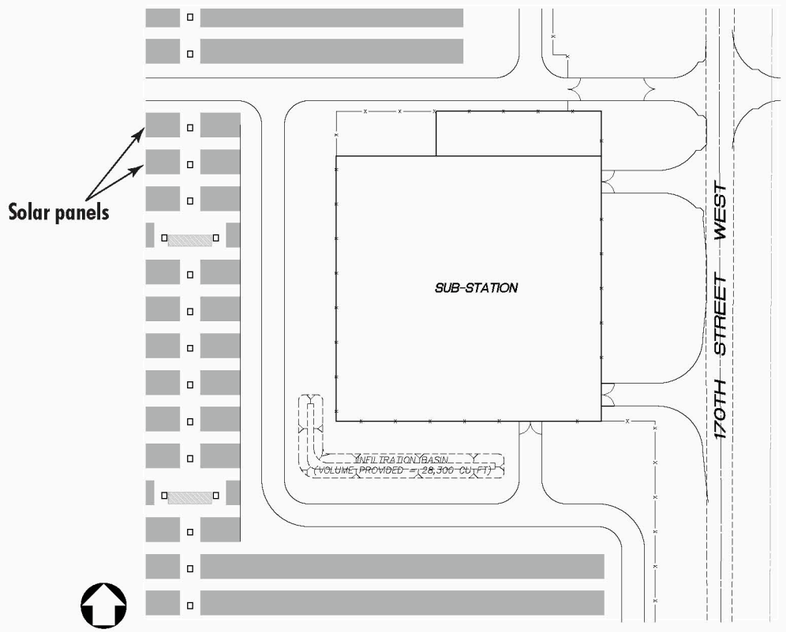
T/Ladd/NextLight/ADEIR#5/ProjectDescription/1009-188C



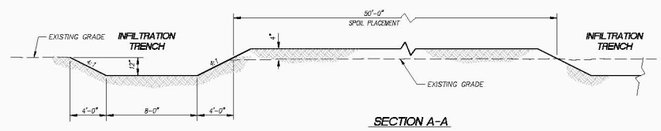
OFFICE AND MAINTENANCE FACILITY
NOT TO SCALE



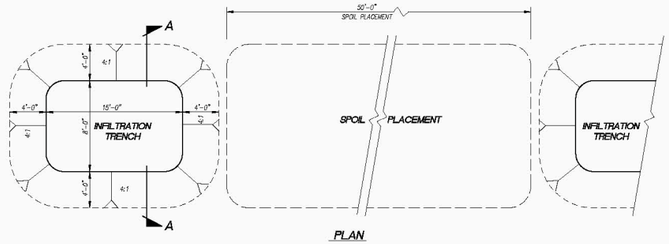
TYPICAL TILTED SOLAR PANEL LAYOUT
NOT TO SCALE



SUB-STATION LAYOUT
NOT TO SCALE



SECTION A-A



PLAN

1 TYPICAL INFILTRATION TRENCH DETAIL
NOT TO SCALE

LEGEND:

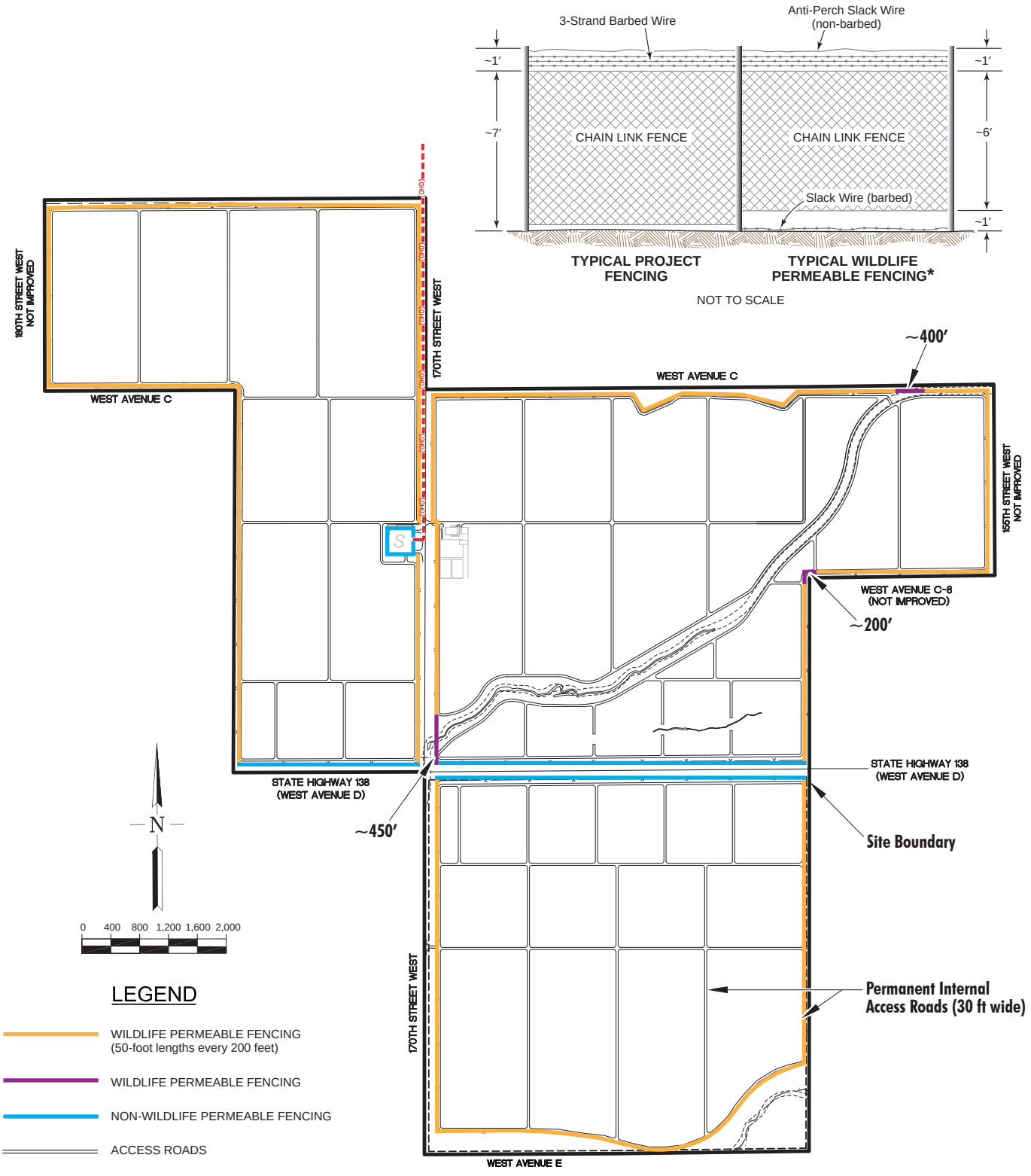
- 30 FT WIDE PERMANENT ALL-WEATHER ACCESS ROAD
- 20 FT WIDE ACCESS PATHWAYS
- 12 FT WIDE ACCESS PATHWAYS
- INFILTRATION TRENCH

NOTE:

1. THE TILTED TRACKER INFILTRATION TRENCHES SHOWN WERE DERIVED FROM DRAINAGE CONCEPT / HYDROLOGY / LID / SUSMP DATED DEC 21, 2009

Source: Psomas Project No.1NEX010100 HD08-01 DWG Patch: D-5408-2054	**AV Solar Ranch One EIR**	**Figure 4.4-1B.** INFILTRATION TRENCH/ BASIN DETAILS	2010

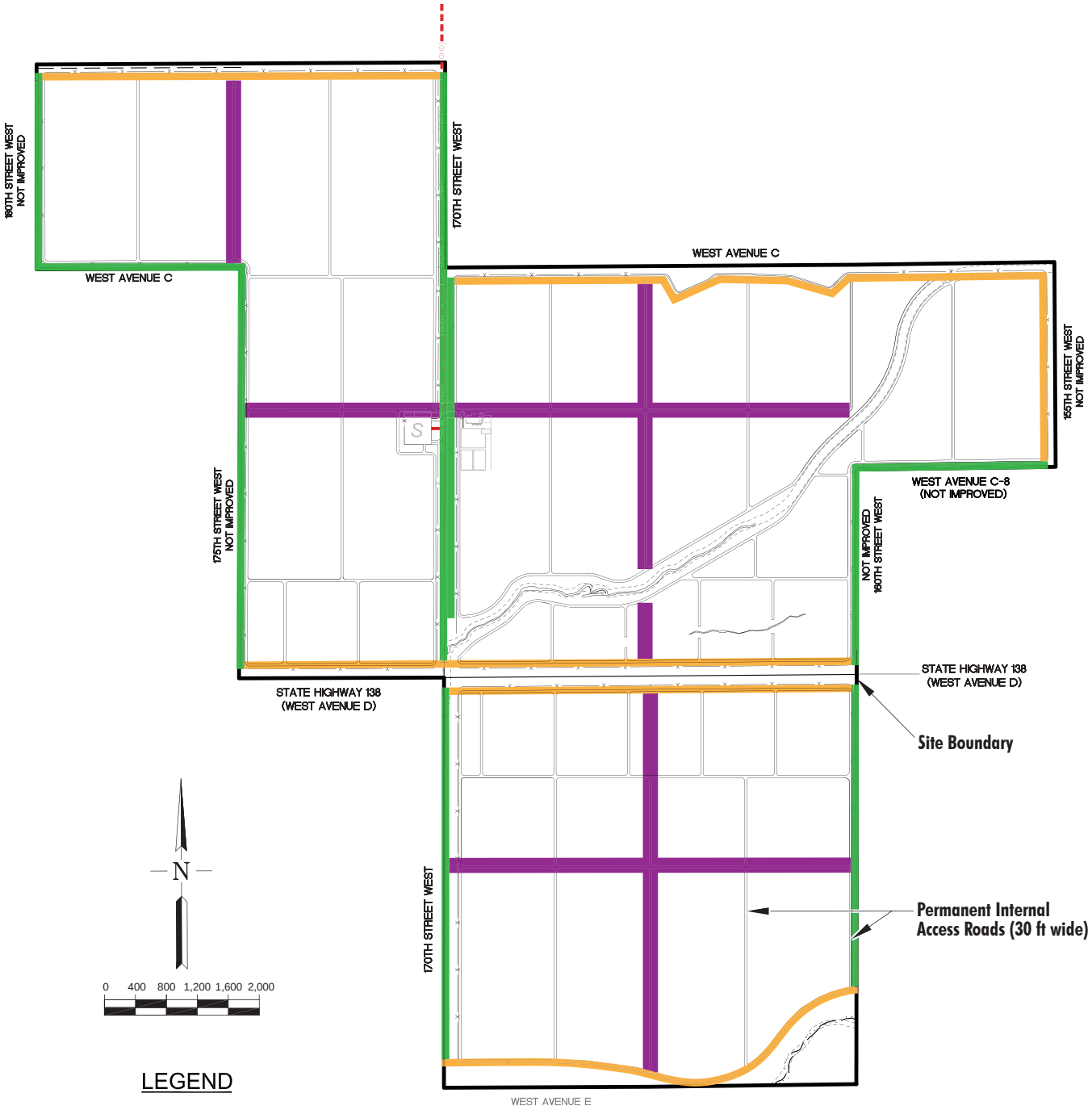
T/Ladd/NextLight/ADEIR#5/ProjectDescription/209-023E



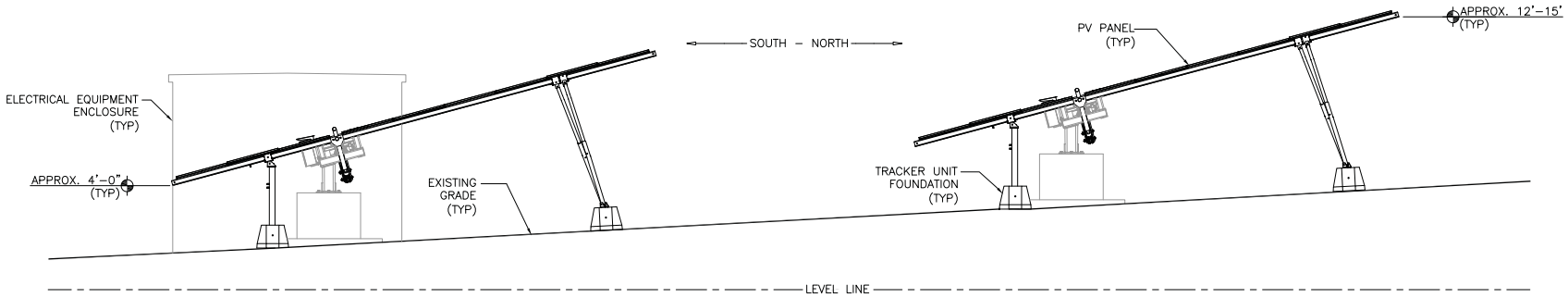
***Note:**
Other fence designs that will allow as much or greater wildlife movement may be used in certain areas if needed (e.g., at the intersection of 170th Street West and SR-138 a "break-away" design may be required to accommodate heavy flows in the event of significant flooding).

Source: Psomas and Patch Services Dated 2010 Adapted from Patch Drawing D-5408-2001	**AV Solar Ranch One EIR**	**Figure 4.4-1C.** LOCATION OF WILDLIFE-PERMEABLE FENCING	2010

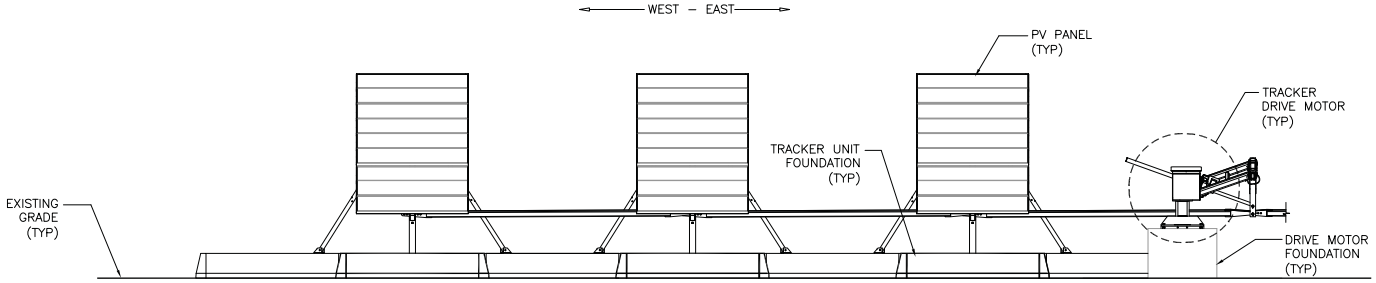
T/Ladd/NextLight/ADEIR#5/ProjectDescription/1009-192B



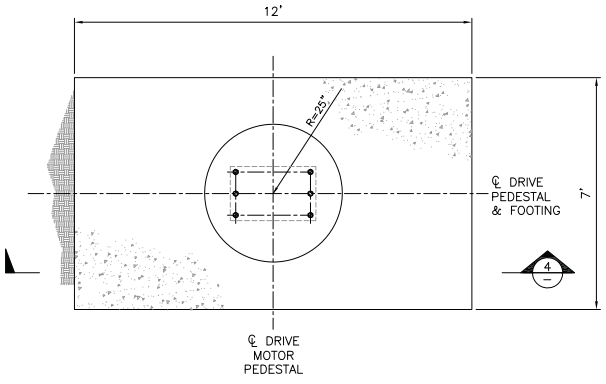
Source: Psomas and Patch Services Dated 2010 Adapted from Patch Drawing D-5408-2001	**AV Solar Ranch One EIR**	**Figure 4.4-1D.** LOCATION OF FIREBREAKS	2010



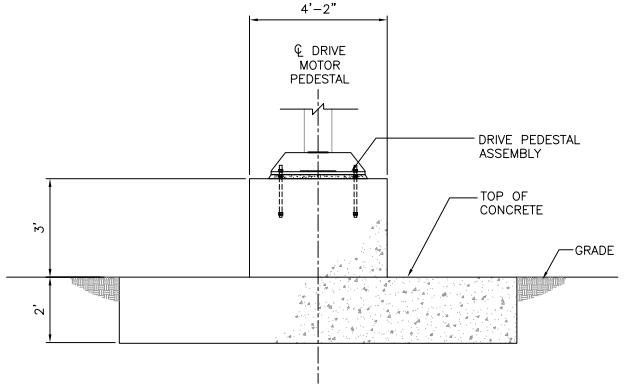
1 TRACKER PRODUCT ELEVATION (SOUTH –NORTH)



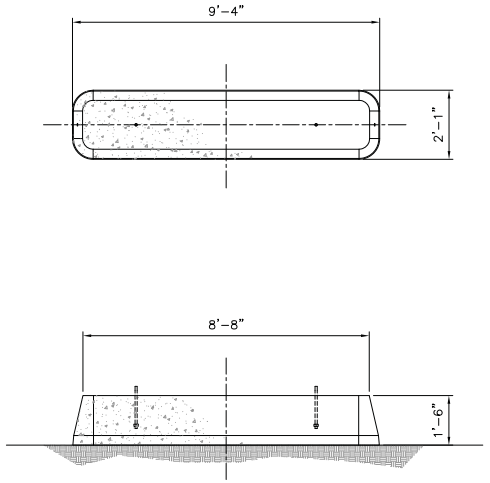
2 TRACKER PRODUCT ELEVATION (WEST–EAST)



3 TRACKER DRIVE MOTOR FOUNDATION – PLAN VIEW



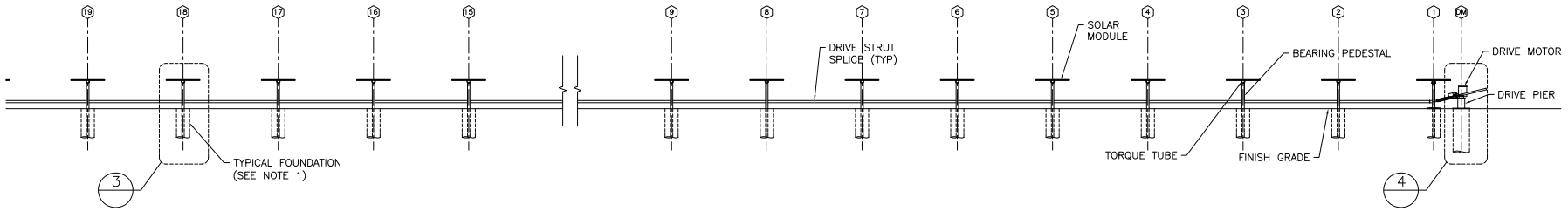
4 TRACKER DRIVE MOTOR FOUNDATION – SECTION CUT



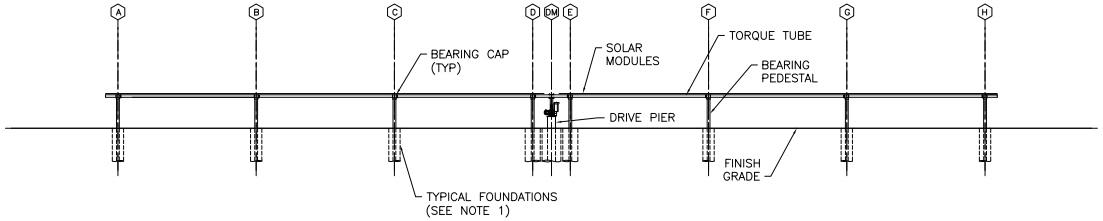
5 TYPICAL TRACKER UNIT FOUNDATION

Source: SunPower - Dated 2009 Drawing C.I.4	**AV Solar Ranch One EIR**	**Figure 4.4-2A.** TYPICAL TILTED TRACKER DETAILS	2010

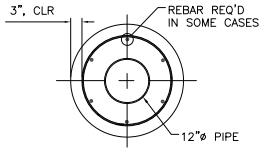
T/Ladd/NextLight/ADEIR#5/ProjectDescr/209-020C



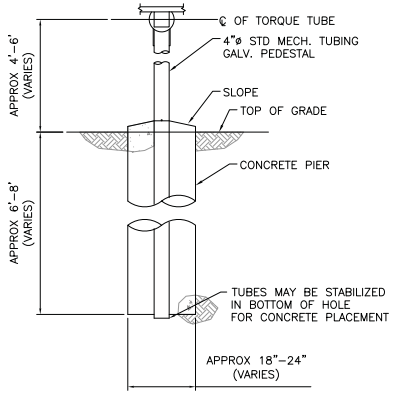
1 TYPICAL BUILDING BLOCK LONGITUDINAL SECTION



2 TYPICAL BUILDING BLOCK TRANSVERSE SECTION

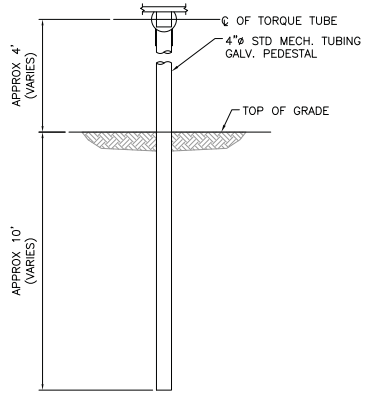


E TYPICAL SECTION



3 TYPICAL CIDH FOUNDATION

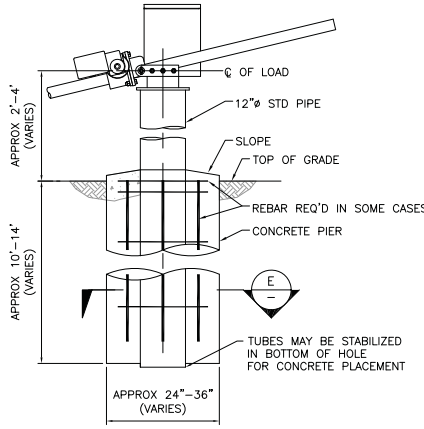
OR



3 TYPICAL DRIVEN PIER FOUNDATION

NOTES:

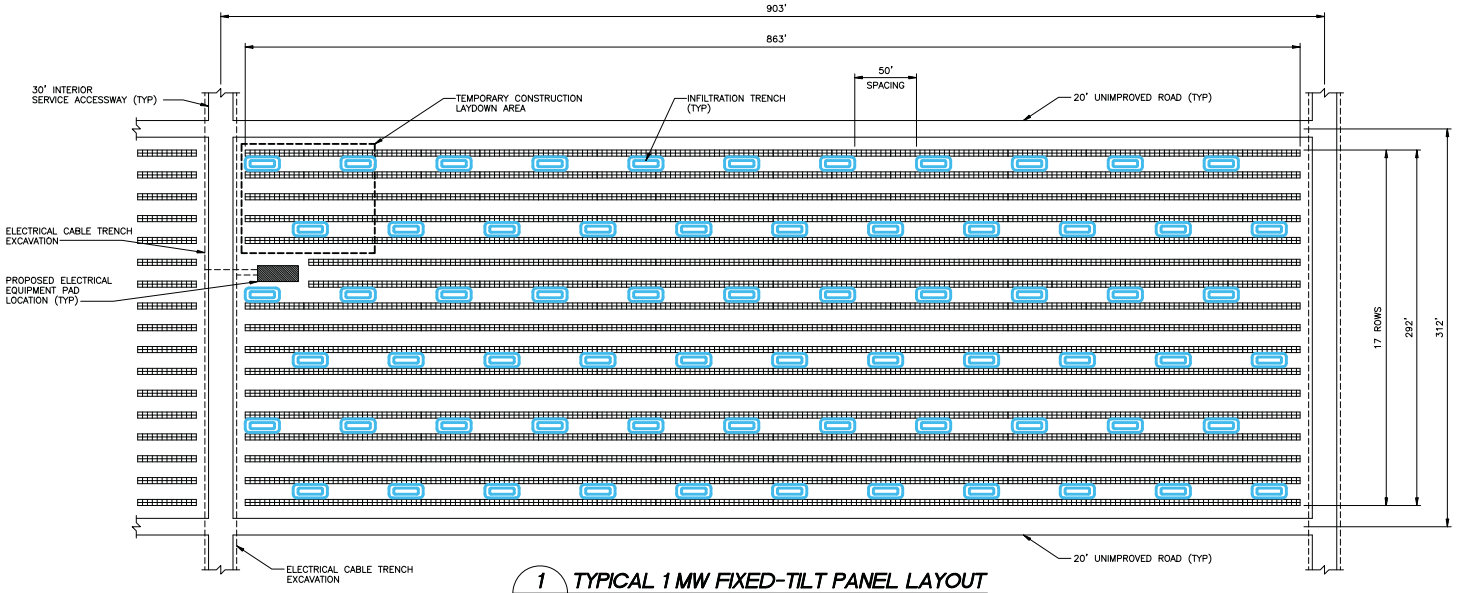
1. TYPICAL FOUNDATION SHOWN IS BASED ON OPTIMAL SOIL CONDITIONS AND ASSUMED NOMINAL WIND SPEED. ACTUAL FOUNDATION DESIGN TBD BASED ON FULL STRUCTURAL CALCULATIONS.
2. ADD 1/4"ø WEEP HOLE ON ALL PEDESTALS AT CONCRETE LEVEL IF TOP OF PIPE IS NOT FULLY SEALED AGAINST WATER.



4 TYPICAL DRIVE PIER FOUNDATION

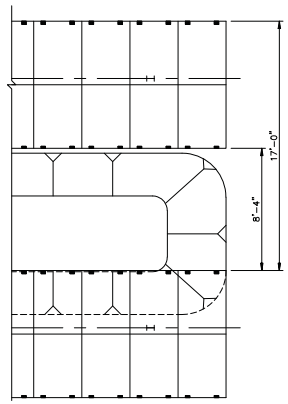
Source: SunPower - Dated 2009 Drawing C.I.6	**AV Solar Ranch One EIR**	**Figure 4.4-2B.** TYPICAL HORIZONTAL TRACKER DETAILS	2010

T/Ladd/NextLight/ADEIR#5/ProjectDescr/209-020D

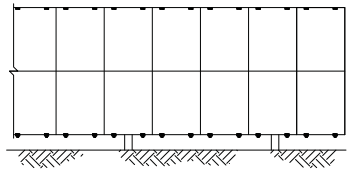


1 TYPICAL 1 MW FIXED-TILT PANEL LAYOUT

NOT TO SCALE



TYPICAL FIX TILT PARTIAL PLAN

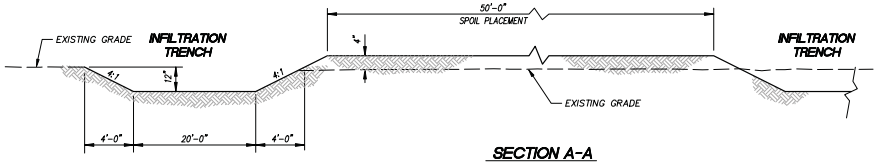


FIXED TILT ELEVATION (WEST–EAST)

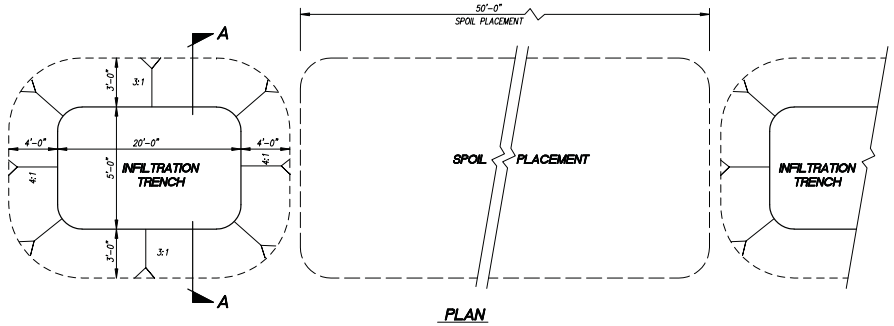
PROJECT SAMPLE AREA = 903' x 312'
= 281,736 SF
= 6.47 AC

POST DEVELOPMENT IMPERVIOUS AREAS

SOLAR PANEL EFFECTIVE IMPERVIOUS AREA (ASSUME 35% OF SURFACE)	= (35%)(863')(8.67')/ROW x (17 ROWS) = 44,502 SF = 1.02 AC
IMPERVIOUS FACTOR FOR PROJECT SAMPLE AREA	= 1.02/6.47 = 0.16
MITIGATION VOLUME REQUIRED PER 6.47 AC	= 13,000 CU.FT.
VOLUME OF SINGLE INFILTRATION TRENCH	= 200 CU.FT.
TOTAL # OF INFILTRATION TRENCH PER 6.47 AC	= 66
TOTAL MITIGATION VOLUME PROVIDED PER 6.47 AC	= 13,200 CU.FT.



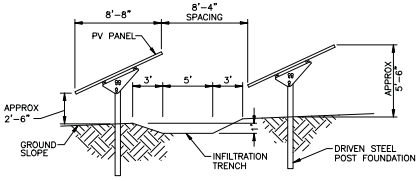
SECTION A-A



PLAN

3 INFILTRATION TRENCH DETAIL

NOT TO SCALE



FIXED TILT ELEVATION (SOUTH–NORTH)

2 FIXED-TILT PANEL DETAIL

NOT TO SCALE

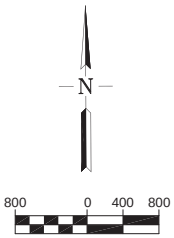
Source: Psomas - Dated 2010	**AV Solar Ranch One EIR**	**Figure 4.4-2C.** TYPICAL FIXED TILT ARRAY DETAILS	2010

Source: Patch Services Dated 2009	**AV Solar Ranch One EIR**	**Figure 4.4-3.** TILTED TRACKER VISUAL SIMULATION (BALLAST FOUNDATION)	2010

T/Ladd/NextLight/ADEIR#5/ProjectDescription/609-102D

LEGEND

- PROPOSED 8-INCH WATER LINE
- (OHD) 230 KV
- (R) ELECTRICAL RISER
- 34.5 KV
- PROPERTY BOUNDARY
- AC TRENCH
- DC TRENCH
- (W) EXISTING WATER WELL TO REMAIN
- (S) SUBSTATION



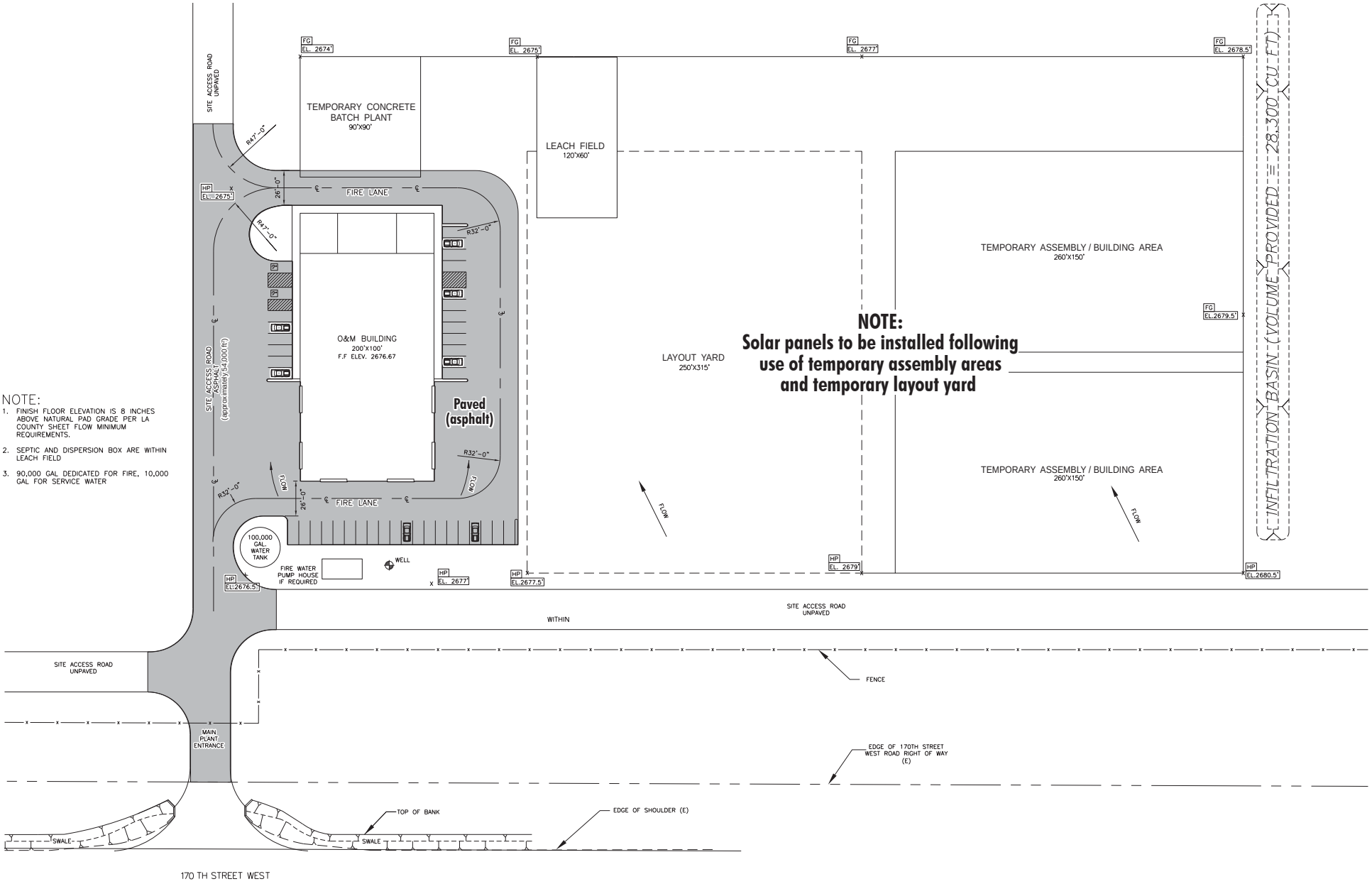
Source:
Patch Services
Drawing Number 5408-2001
Dated 2010

AV Solar Ranch One EIR

Figure 4.4-4. PROPOSED UTILITY PLAN

2010

T/Ladd/NextLight/ADEIR#5/ProjrectDescription/209-022F



TRUE NORTH

30 0 15 30 60

Source:
Patch Services
Dated 5/4/2010
Patch Drawing 5408-2004_Q

AV Solar Ranch One EIR

Figure 4.4-5A. OPERATIONS & MAINTENANCE FACILITY AREA

2010

T/Ladd/NextLight/ADEIR#5/ProjectDescription/1009-189A

FENCE

FG EL. 2681'

SEE NOTE 2

HP EL. 2679'

FLOW

50'x200' SWALE
BOTTOM EL. 2677.5'

1' HIGH COMPACTED EARTHEN BERM

HP 2682'

FG EL. 2681'

HP EL. 2679'

30' ACCESS ROAD

FLOW

FG 2680'

CONTROL HOUSE

FG EL. 2680'

A

A

FG EL. 2681'

FLOW

FLOW

SUBSTATION
350'X350'

HP EL. 2683'

HP EL. 2681'

30' ACCESS ROAD

INFILTRATION BASIN
(VOLUME PROVIDED = 28,300 CU FT)

30' ACCESS ROAD

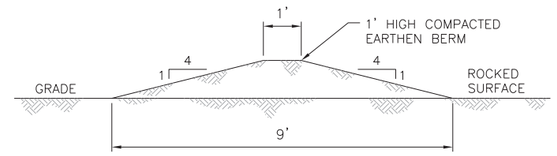
170TH STREET WEST

EDGE OF RIGHT OF WAY

EDGE OF RIGHT OF WAY

NOTE

1. TOP OF CONCRETE FOUNDATIONS SHALL BE A MINIMUM OF 1'-0" ABOVE FINISHED GRADE.
2. RAIN WATER SHALL BE DISCHARGED FROM THE SWALE AFTER INSPECTION TO CONFIRM NO UNACCEPTABLE SUBSTANCES ARE PRESENT.



SECTION A–A
N.T.S

TRUE NORTH

N

30 0 15 30 60

Source:
TriAxis Engineering
and Patch Services
Dated 2010
Drawing Number D-5408-2020

AV Solar Ranch One EIR

Figure 4.4-5B. SUBSTATION AREA

2010

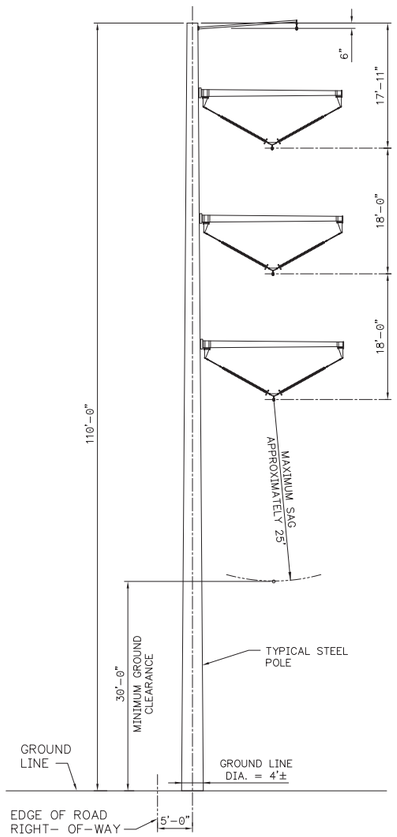
PRELIMINARY CONCEPT

DESIGN ASSUMPTIONS:

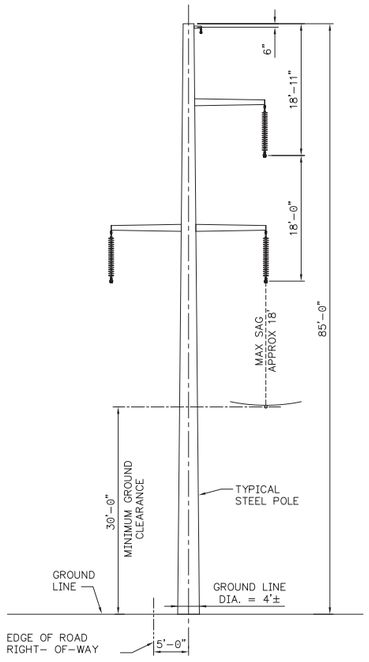
- AVERAGE SPAN: 700'
- MAXIMUM SPAN: 800'
- 1–1272 KCMIL "BITTERN" ACSR PER PHASE

NOTES:

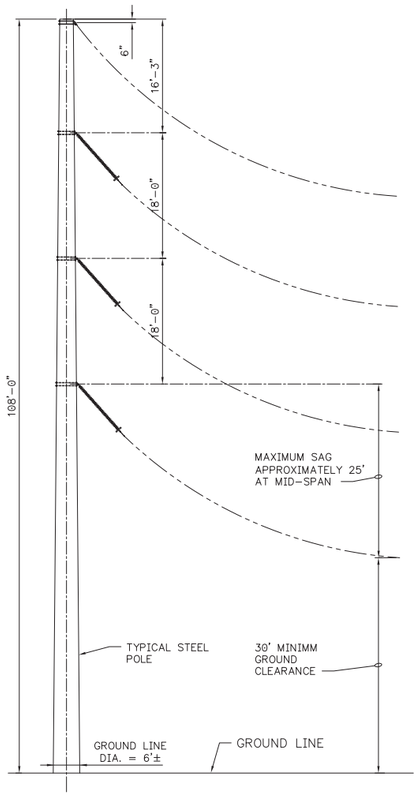
1. STRUCTURE DIMENSIONS ARE APPROXIMATE. ACTUAL DIMENSIONS MAY VARY.
2. DRAWING IS NOT TO EXACT SCALE.
3. THE AV SOLAR RANCH ONE PROJECT INCLUDES INSTALLATION OF A SINGLE 230–kV CIRCUIT ON DOUBLE–CIRCUIT TOWERS, AS SHOWN, AND INCLUDES PROVISIONS FOR AN ADDITIONAL CIRCUIT INSTALLED BY OTHER PROJECTS AND UNDER SEPARATE APPROVALS.



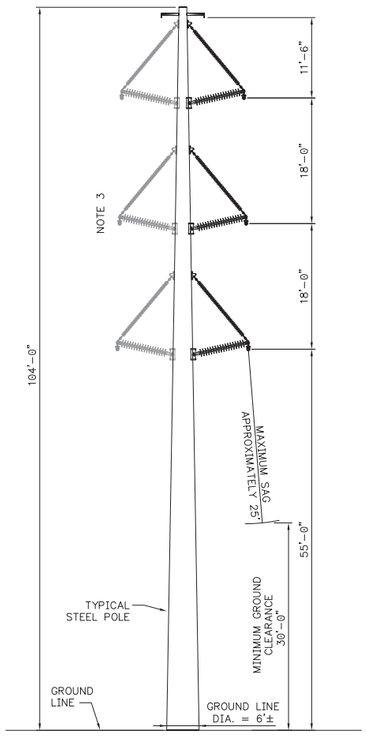
230–kV TUBULAR STEEL TANGENT, SINGLE–CIRCUIT STRUCTURE SKETCH



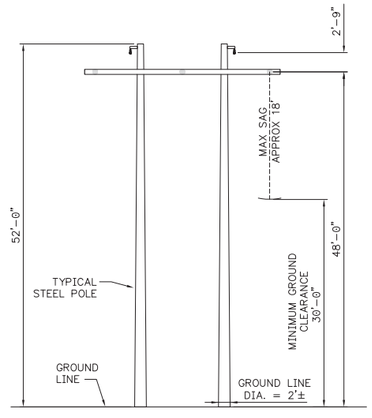
230–kV TUBULAR STEEL TANGENT, SINGLE–CIRCUIT STRUCTURE SKETCH



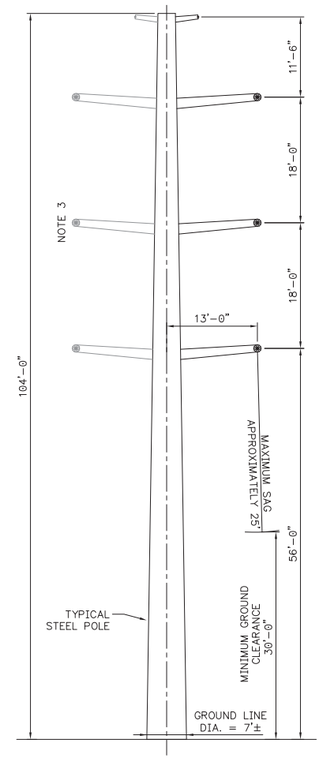
230–kV TUBULAR STEEL DEADEND, SINGLE–CIRCUIT STRUCTURE SKETCH



230–kV TUBULAR STEEL TANGENT, DOUBLE–CIRCUIT STRUCTURE SKETCH



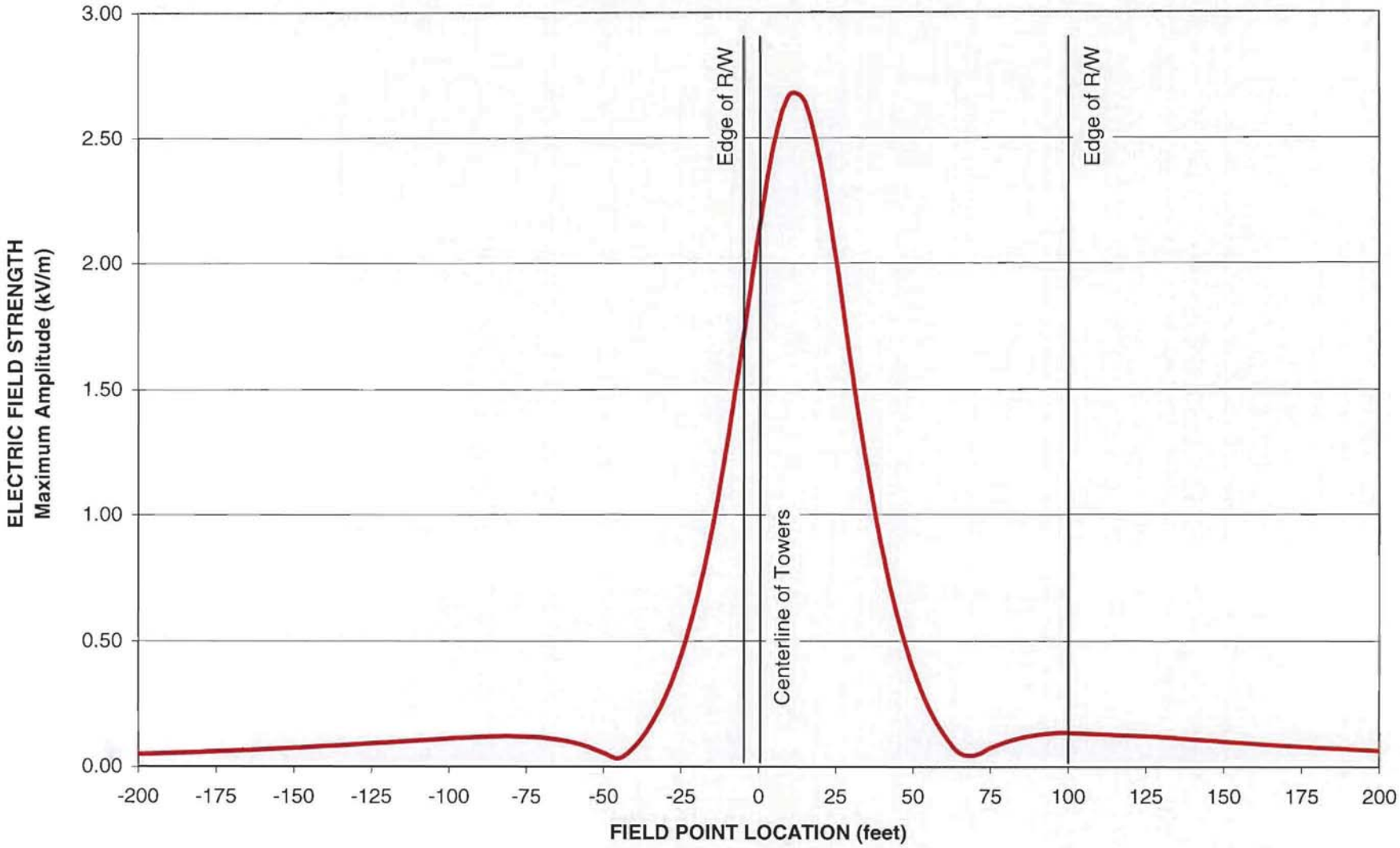
230–kV TUBULAR STEEL DOUBLE–CIRCUIT CROSSING STRUCTURE SKETCH



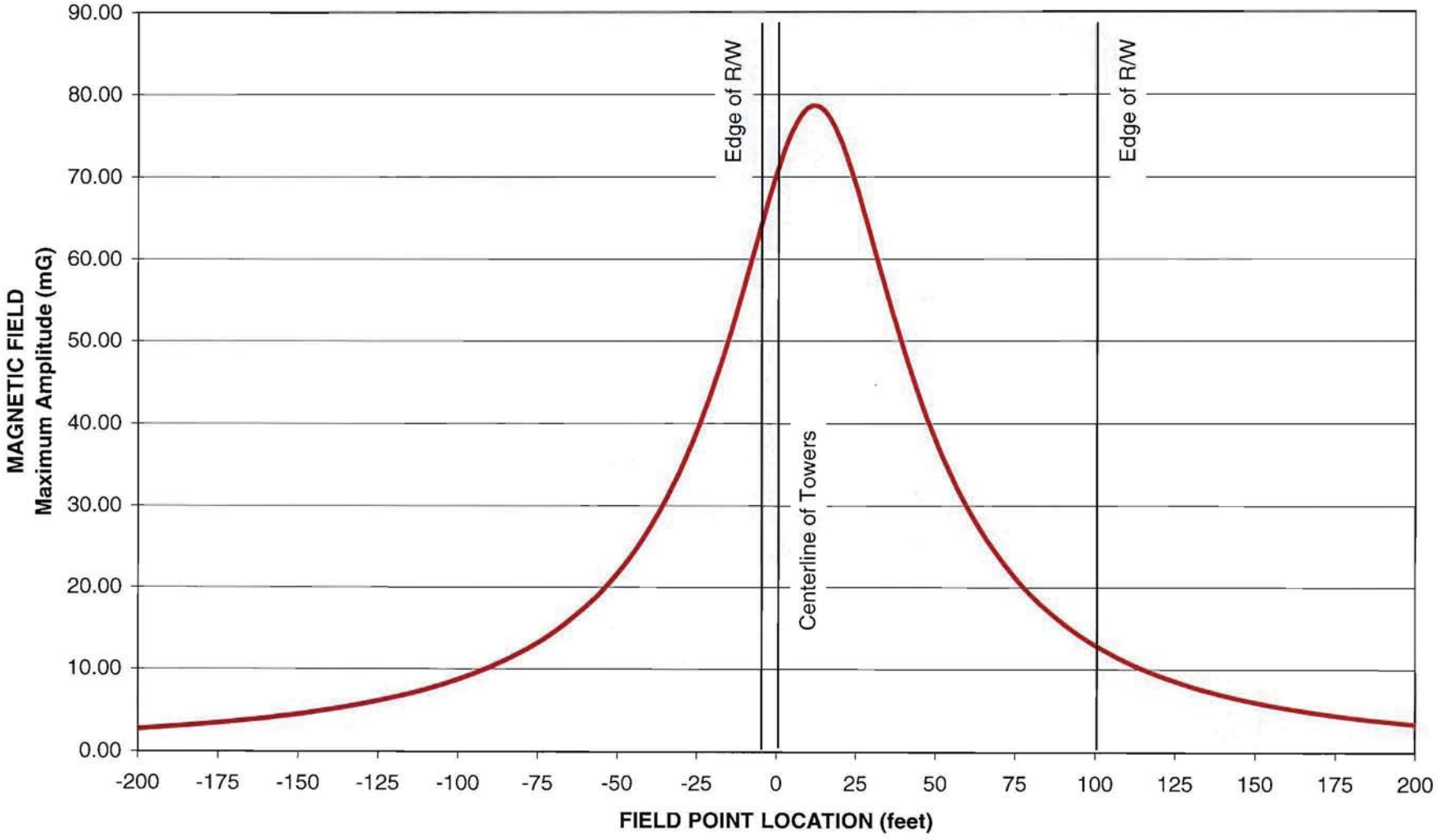
230–kV TUBULAR STEEL DEADEND DOUBLE–CIRCUIT STRUCTURE SKETCH

Source: TriAxis Engineering Co. Dated 2010 Drawing TI.0	**AV Solar Ranch One EIR**	**Figure 4.4-6.** TYPICAL TRANSMISSION LINE POLE CONFIGURATIONS	2010

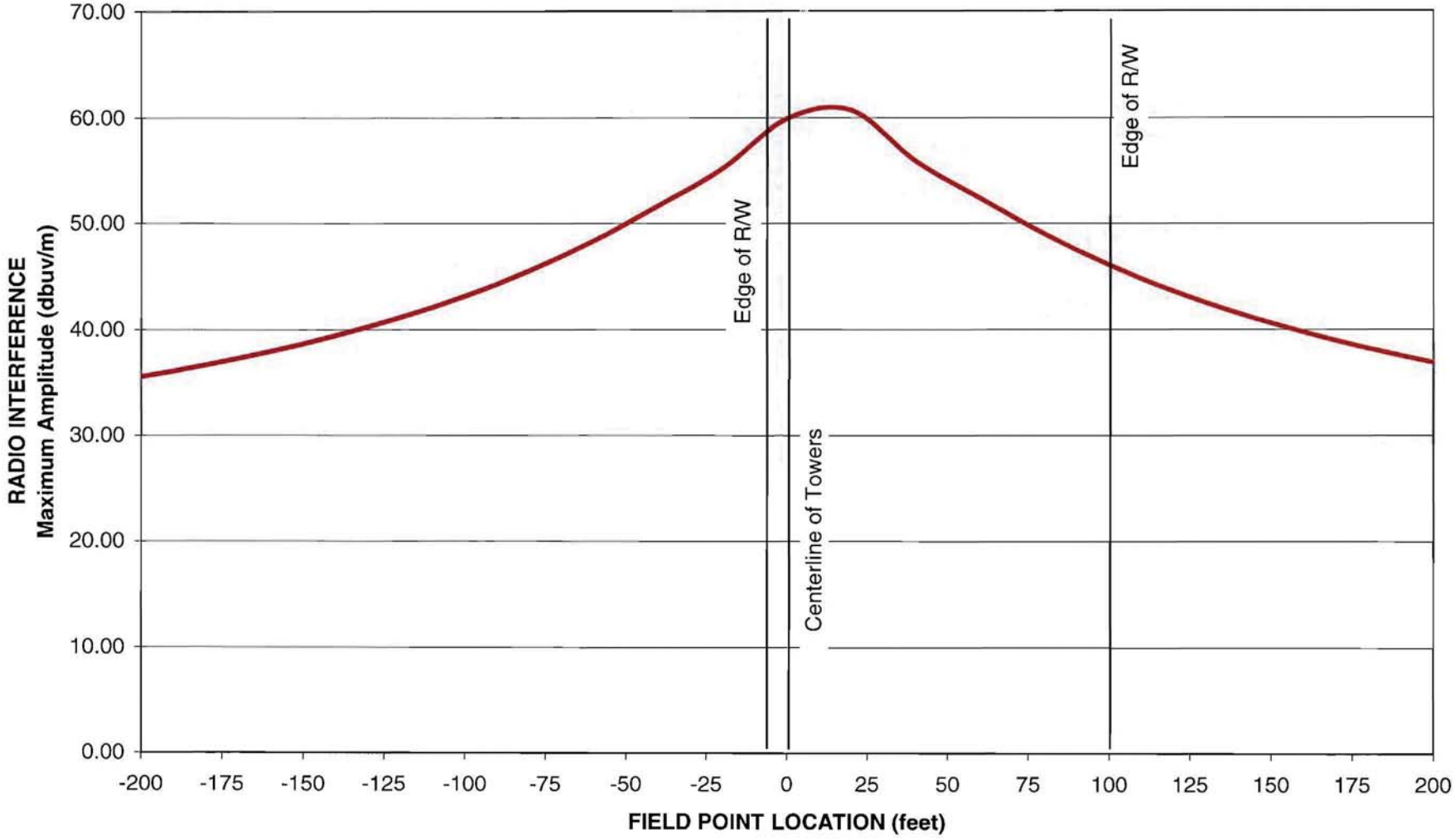
T/Ladd/NextLight/ADEIR#3/ProjDescr/609-103A



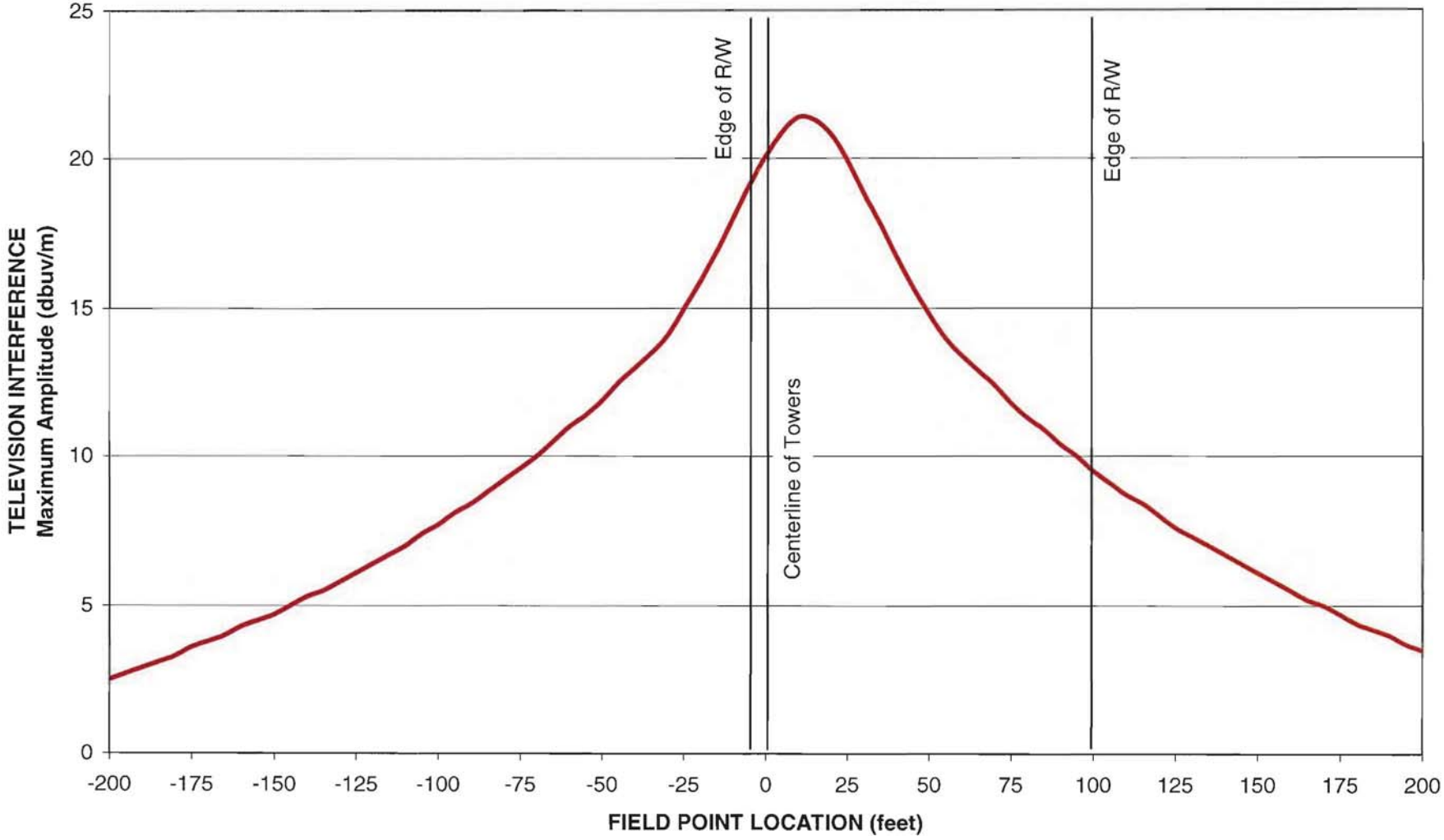
Source: TriAxis Engineering Co. Dated 2009 Graph 1	**AV Solar Ranch One EIR**	**Figure 4.4-7.** EMF 60 HZ ELECTRIC FIELD	2010



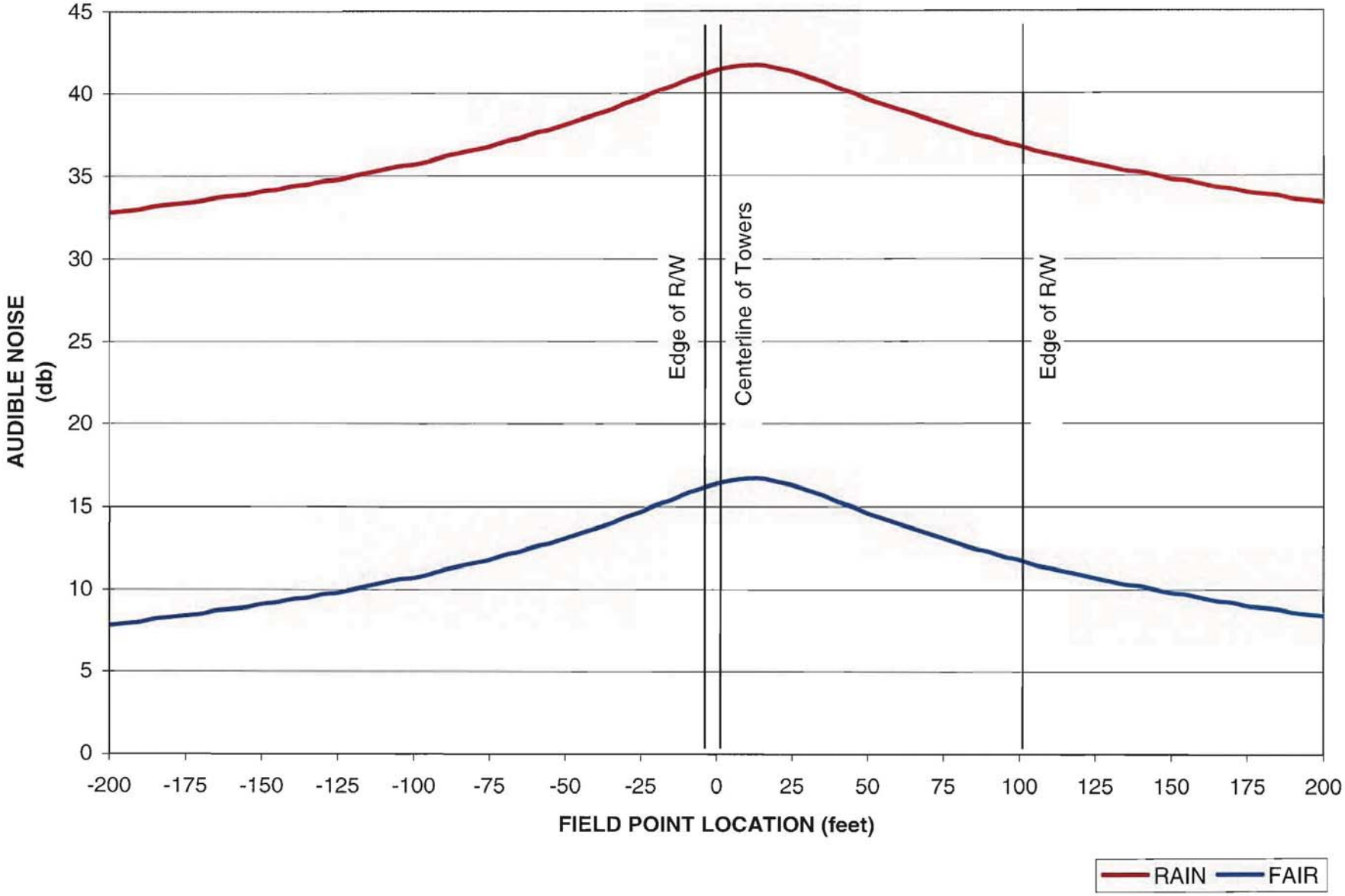
Source: TriAxis Engineering Co. Dated 2009 Graph 2	**AV Solar Ranch One EIR**	**Figure 4.4-8.** EMF 60 HZ MAGNETIC FIELD	2010



Source: TriAxis Engineering Co. Dated 2009 Graph 3	**AV Solar Ranch One EIR**	**Figure 4.4-9.** EMF RADIO INTERFERENCE AT 1 MHz	2010

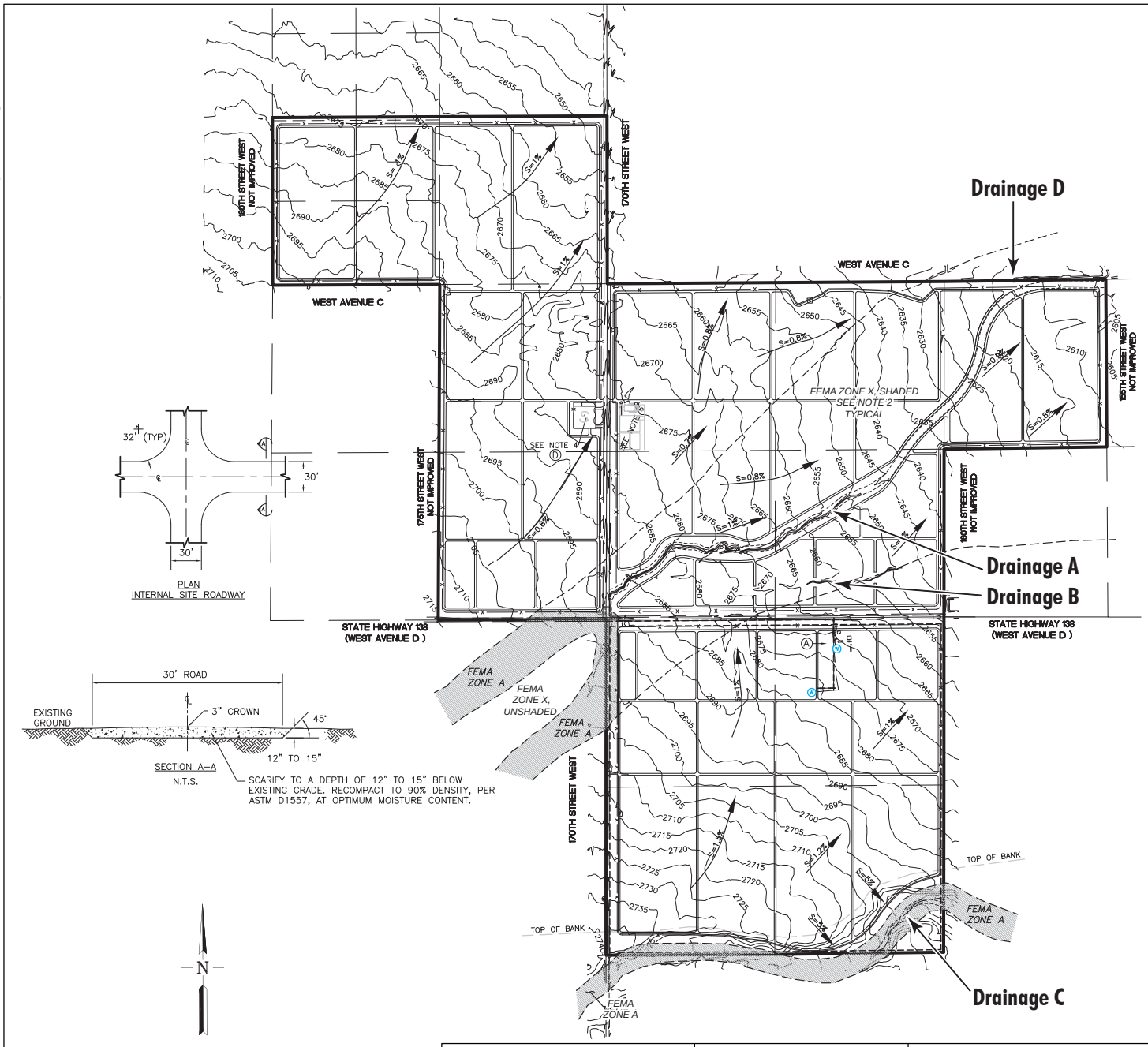


Source: TriAxis Engineering Co. Dated 2009 Graph 4	**AV Solar Ranch One EIR**	**Figure 4.4-10.** EMF TELEVISION INTERFERENCE AT 75 MHz	2010



Source: TriAxis Engineering Co. Dated 2009 Graph 5	**AV Solar Ranch One EIR**	**Figure 4.4-11.** EMF AUDIBLE NOISE (FAIR WEATHER AND RAIN)	2010

T:/Ladd/NextLight/ADEIR#5/ProjectDescription/609-108D



NOTES:

1. THIS SURVEY IS BASED ON GRID COORDINATES DERIVED FROM A GPS SURVEY PROVIDED BY **WESTWOOD PROFESSIONAL SERVICES**, EDEN PRAIRIE, MINNESOTA. THE GRID TO GROUND SCALE FACTOR IS 1.000201170.
2. ZONE X AREA BETWEEN LIMITS ARE AREAS OF 0.2% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT. OUTSIDE LIMIT AREAS, ARE AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCES FLOOD PLAIN
3. ALL OF THE NW. 1/4 OF SECTION 18 FALLS WITHIN ZONE X FLOOD LINES PER FEMA MAP 065043 0075 B.
4. SEE FIGURE 4.4-5B FOR PRIMARY SUBSTATION GRADING PLAN
5. SEE FIGURE 4.4-5A FOR OPERATIONS AND MAINTENANCE FACILITY GRADING PLAN
6. GRADING REQUIRED TO PROVIDE SERVICEABLE INTERNAL ROADWAYS WILL BE PERFORMED AS SHOWN HEREON

ESTIMATED ON-SITE GRADING RELATED CUT AND FILL

Activity	Cut (Yd^3)	Fill (Yd^3)
Permanent 30-foot Wide Roads	50,000	54,000
Well Basin Area A	4,100	5,700
Well Basin Area B	2,100	1,000
Substation Area (Swale and Berms)	650	7,200
Equipment Pad Foundation	0	810
Infiltration Trenches Solar Fields 1 – 6	111,000	111,000
Infiltration Basin Near Substation Area	1,048	0
Infiltration Basin Near O&M Facility	1,048	0
Drive Motor Foundations	10,050	0
TOTALS	179,996	179,710

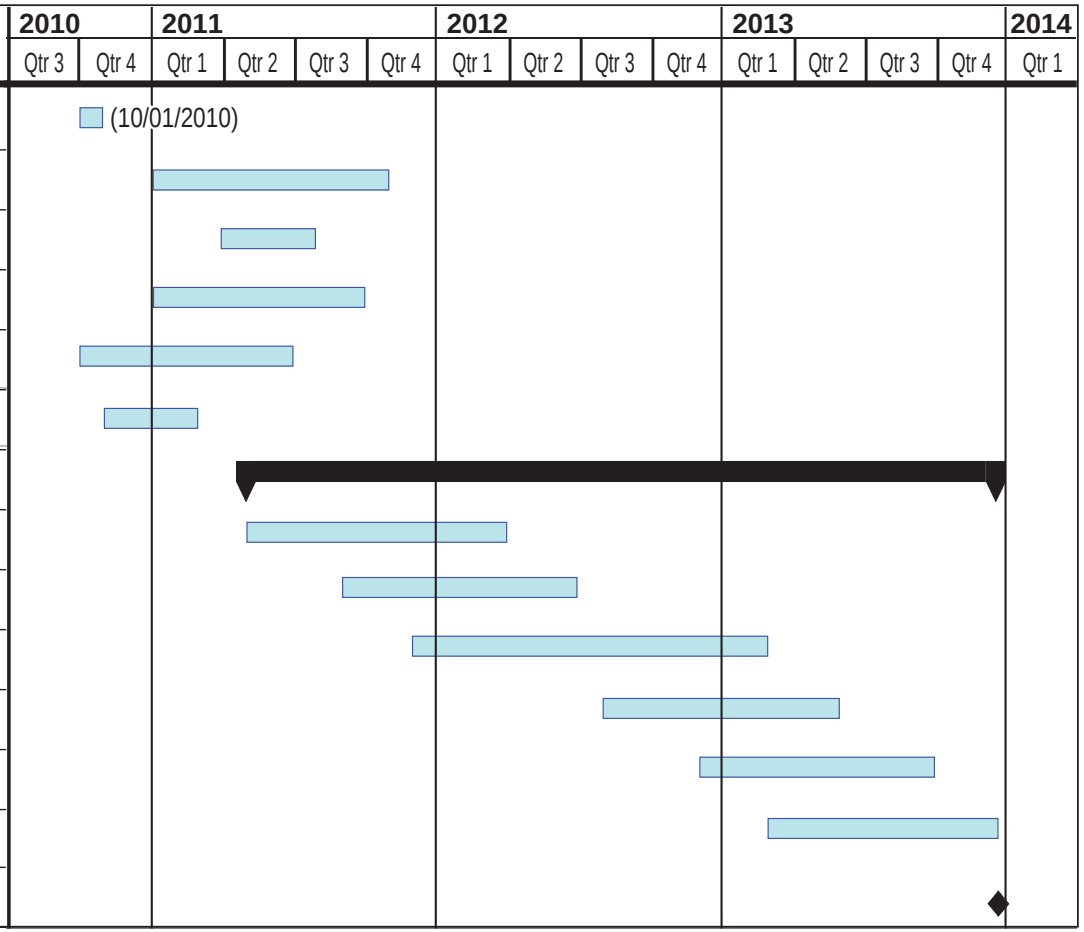
Source:
Patch Services
Dated 2010
Drawing D-5408-2053

AV Solar Ranch One EIR

Figure 4.4-12. GRADING AND DRAINAGE PLAN

2010

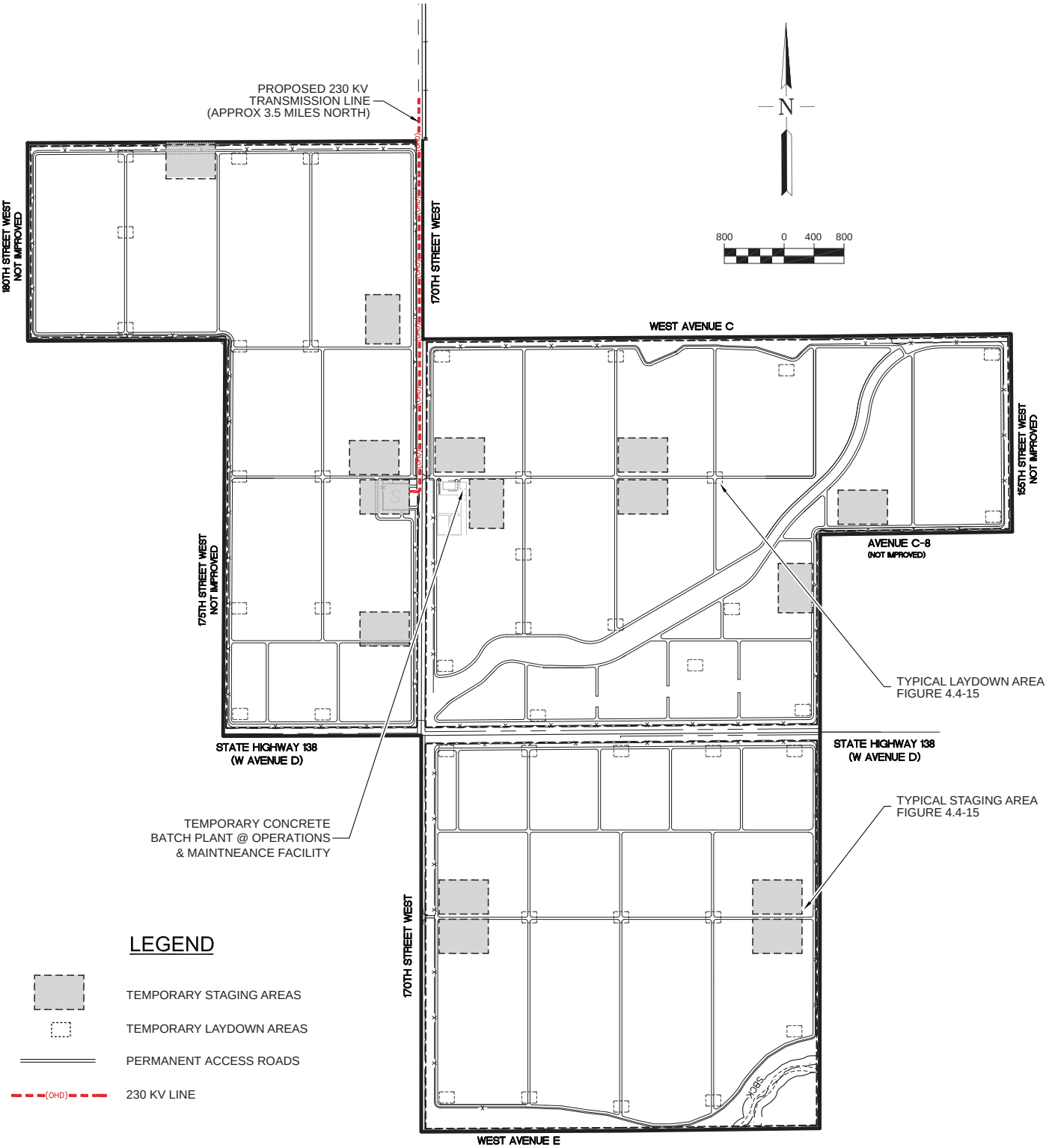
ID	Task Name
1	Site Mobilization
2	Onsite Substation (34.5/230 kV)
3	230 kV Transmission Line
4	Medium Voltage Infrastructure
5	O&M Facility/Temporary Construction Facilities/Utilities-Civil Works
6	Drainage A Sheet Pile/Water Supply Pipeline Installation
7	Solar Field Development
8	Field One
9	Field Two
10	Field Three
11	Field Four
12	Field Five
13	Field Six
14	Final Completion/Full Commercial Operation



Note: Planned construction schedule applies to both 8-10 MW per month construction scenarios – i.e., pile foundations and concrete ballast foundations.

Source: NextLight - Dated 2010 Construction Schedule Input	**AV Solar Ranch One EIR**	**Figure 4.4-13.** PLANNED PROJECT CONSTRUCTION SCHEDULE	2010

T/Ladd/NextLight/ADEIR#5/ProjectDescription/209-023E



TEMPORARY STAGING AREAS	SIZE (ACRES) APPROX.
15 TOTAL x 7 (ACRES)	103

TEMPORARY LAY-DOWN AREAS	SIZE (ACRES) APPROX.
41 TOTAL x 0.7 (ACRES)	28

Source:
Patch Services
Dated 2010
Adapted from Patch Drawing
D-5408-2052

AV Solar Ranch One EIR

Figure 4.4-14. TEMPORARY CONSTRUCTION, STAGING AND LAYDOWN AREA PLAN

2010

SECTION 5.0
ENVIRONMENTAL IMPACT ANALYSIS

5.1 INTRODUCTION AND IMPACTS FOUND TO BE LESS THAN SIGNIFICANT

5.1.1 Introduction

Sections 5.2 through 5.18 of this Draft EIR present analyses (by environmental impact category) of the potential environmental effects that could result from implementation of the proposed AV Solar Ranch One Project (Project). This section also presents mitigation measures, where appropriate, to avoid or minimize potential environmental effects associated with the Project. The environmental topics (or impact categories) analyzed in detail in this EIR are:

- 5.2 – Geotechnical Hazards
- 5.3 – Flood Hazards
- 5.4 – Fire Hazards
- 5.5 – Water Quality
- 5.6 – Air Quality
- 5.7 – Biological Resources
- 5.8 – Cultural and Paleontological Resources
- 5.9 – Agricultural Resources
- 5.10 – Visual Qualities
- 5.11 – Traffic and Access
- 5.12 – Fire Protection Services
- 5.13 – Sheriff Services
- 5.14 – Utility Services
- 5.15 – Environmental Safety
- 5.16 – Land Use
- 5.17 – Global Climate Change
- 5.18 – Noise

Each environmental topic section analyzed in this EIR is organized in the following manner: regulatory setting, environmental setting, project impacts, cumulative impacts, mitigation

5.17 GLOBAL CLIMATE CHANGE

This analysis focuses on the proposed AV Solar Ranch One Facility and the off-site 230-kV transmission line and the potential impacts they may have directly or indirectly on greenhouse gases (GHG) and associated climate change issues. The AV Solar Ranch One Project (Project) is typical of ongoing efforts to increase the use of renewable energy and reduce GHG emissions associated with electricity generation. The following discussion addresses GHG and climate change, including potential Project impacts and consistency with applicable plans and policies.

5.17.1 Regulatory Setting

5.17.1.1 International

5.17.1.1.1 United Nations Framework Convention on Climate Change. The Convention on Climate Change sets an overall framework for intergovernmental efforts to address the challenge posed by climate change. It recognizes that the climate system is a shared resource whose stability can be affected by industrial and other emissions of carbon dioxide and other greenhouse gases. The Convention enjoys near universal membership, with 192 countries participating.

Under the Convention, governments:

- Gather and share information on greenhouse gas emissions, national policies and best practices
- Launch national strategies for addressing greenhouse gas emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries
- Cooperate in preparing for adaptation to the impacts of climate change

The Convention entered into force on March 21, 1994.

5.17.1.1.2 Kyoto Protocol. The Kyoto Protocol is an international agreement linked to the United Nations Framework Convention on Climate Change. The major feature of the Kyoto Protocol is that it sets binding targets for 37 industrialized countries and the European community for reducing greenhouse gas emissions. These amount to an average of five percent against 1990 levels over the five-year period 2008–2012.

The major distinction between the Protocol and the Convention is that while the Convention encouraged industrialized countries to stabilize GHG emissions, the Protocol commits them

to do so. The United States signed the Kyoto Protocol on December 11, 1998, but has not ratified the Kyoto Protocol.

5.17.1.2 Federal

The U.S. Environmental Protection Agency (USEPA) and the U.S. Department of Energy (DOE) have multiple policies and programs to promote renewable energy and reductions in GHG.

5.17.1.2.1 USEPA Final Mandatory Reporting of Greenhouse Gases Rule. In response to the fiscal year (FY) 2008 Consolidated Appropriations Act (H.R. 2764; Public Law 110–161), USEPA issued the Final Mandatory Reporting of Greenhouse Gases Rule[1]. The USEPA Administrator (Administrator) signed the final rule on September 22, 2009 with an effective date of December 29, 2009. On October 30, 2009, the final rule was published in the Federal Register under Docket ID No. EPA-HQ-OAR-2008-0508-2278. The rule requires reporting of greenhouse gas emissions from large sources and suppliers in the United States, and is intended to collect accurate and timely emissions data to inform future policy decisions.

Under the rule, suppliers of fossil fuels or industrial greenhouse gases, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of CO_2-equivalent GHG emissions are required to submit annual reports to EPA. The gases covered by the proposed rule are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFC), perfluorocarbons (PFC), sulfur hexafluoride (SF_6), and other fluorinated gases including nitrogen trifluoride (NF_3) and hydrofluorinated ethers (HFE). The rule covers approximately 10,000 facilities nationwide, accounting for 85 percent of domestic greenhouse gas emissions.

This federal final rule does not preempt states from developing similar requirements. The preamble to the final GHG rule deals directly with the question of preemption[2]. It states as follows: "States collecting additional information have determined that these data are necessary to implement their specific climate policies and programs. USEPA agrees that State and regional programs are crucial to achieving emissions reductions, and this rule does not preempt any other programs." From a review of the Preamble to the Rule it seems that the California Environmental Protection Agency played a major role in this process. As a function of political reality, states are not going to be precluded from charting their own course (with USEPA concurrence)[3].

[1] A copy of the final rule is available at: http://www.epa.gov/climatechange/emissions/ghgrulemaking.html.
[2] See Page 29, E.
[3] See 74 FR 16457, 10 April 2009.

5.17.1.2.2 USEPA Proposed Endangerment and Cause or Contribute Findings for Greenhouse Gases under the Clean Air Act. On April 2, 2007, the Supreme Court found that GHGs are air pollutants covered by the Clean Air Act[4]. The Supreme Court held that the Administrator must determine whether or not emissions of greenhouse gases from new motor vehicles cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. In making these decisions, the Administrator is required to follow the language of section 202(a) of the Clean Air Act.

On December 7, 2009, the Administrator made two findings regarding greenhouse gases under Section 202(a) of the Clean Air Act:

- Endangerment Finding: The Administrator finds that the current and projected concentrations of the six key well-mixed greenhouse gases (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride) in the atmosphere threaten the public health and welfare of current and future generations.
- Cause or Contribute Finding: The Administrator finds that the combined emissions of these well-mixed greenhouse gases from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas pollution which threatens public health and welfare.

While these findings alone do not impose any requirements on industry or other entities, this action is a prerequisite to regulatory actions by the USEPA, including but not limited to GHG emissions standards for light-duty vehicles. The Proposed Endangerment and Cause or Contribute Findings for GHG under the Clean Air Act was signed on April 17, 2009. On April 24, 2009, the proposed rule was published in the Federal Register under Docket ID No. EPA-HQ-OAR-2009-0171.

5.17.1.2.3 Executive Order 13432. This Executive Order outlines steps to ensure the coordinated and effective exercise of the authorities of the President and the heads of the Department of Transportation, the Department of Energy, and the Environmental Protection Agency to protect the environment with respect to greenhouse gas emissions from motor vehicles, non-road vehicles, and non-road engines, in a manner consistent with sound science, analysis of benefits and costs, public safety, and economic growth.

5.17.1.2.4 Energy Independence and Security Act of 2007 (H.R. 6). This Act authorized appropriations for several programs aimed at increasing the production of renewable energy and decreasing emissions of greenhouse gases. Among them, the Solar Energy Research and Advancement Act of 2007 (Title VI, Subtitle A) requires the Secretary of Energy to study

[4] Massachusetts v. EPA, 549 U.S. 497 (2007).

and report to Congress on methods to integrate utility-scale photovoltaic systems into regional electricity transmission systems and identify new transmission or transmission upgrades needed to bring electricity from high solar power resource areas to growing electric power load centers (Section 603). Furthermore, Title VI directed the creation of a competitive grant program to create and strengthen solar industry workforce training and internship programs in installation, operation, and maintenance of solar energy products (Section 604).

5.17.1.3 State

California has undertaken several actions to address GHG and climate change via legislation and executive orders, as summarized in the following sections.

5.17.1.3.1 Executive Order S-3-05. This Executive Order established statewide GHG emission reduction targets, as well as a process to ensure the targets are met. The reduction targets are 2000 levels by 2010; 1990 levels by 2020; and 80 percent below 1990 levels by 2050.

5.17.1.3.2 California Global Warming Solutions Act of 2006 (Assembly Bill 32). This law requires the California Air Resources Board (CARB) to adopt a statewide greenhouse gas emissions limit equivalent to the statewide GHG emissions levels in 1990 to be achieved by 2020. To achieve this, CARB has a mandate to adopt rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emission reductions.

CARB announced early action GHG reduction measures in June 2007 and established a statewide emissions cap for 2020 in December 2007. In December 2008, CARB adopted regulations requiring mandatory GHG emissions reporting (Subchapter 10, Article 2, Sections 95100 to 95133, Title 17, California Code of Regulations). These regulations set a mandatory GHG emissions reporting limit for applicable stationary source categories of 25,000 metric tons per year. For reference purposes only, these regulations require electric generating facilities with a capacity greater than or equal to 1 megawatt (MW) and 2,500 metric tons (MT) per year carbon dioxide equivalent (CO_2e) to report their emissions annually. The mandatory reporting threshold of 2,500 MT per year for CO_2 does not apply to electrical generation facilities powered by solar energy. The 1-MW threshold does not apply to facilities operating electrical generating equipment with an air quality permit to operate for emergency power only.

On December 11, 2008, CARB approved a Climate Change Scoping Plan outlining the main strategies that California will use to reduce GHG emissions, including, among other measures, a renewables portfolio standard of 33 percent renewable energy by 2020. This reduction would amount to 21,000 million metric tons (MMT) of CO_2e.

5.17.1.3.3 Attorney General's Office. The California Attorney General's Office has undertaken a large role in advocating the goal and objectives of Assembly Bill (AB) 32 and the subsequent implementation steps via commenting on CEQA documents or litigation with lead agencies. Moreover, it has issued fact sheets with various mitigation measures that local agencies may consider to offset or reduce global warming impacts relative to CEQA and general plan development.

5.17.1.3.4 Renewables Portfolio Standard. Senate Bill 1078 (2002) required a California Renewables Portfolio Standard program (RPS) of 20 percent renewable energy by 2017. The 2005 Energy Action Plan II, a joint publication of the California Energy Commission, the California Power Authority, and the California Public Utilities Commission (CPUC), added a standard of 33 percent renewable energy by 2020. In 2006, Senate Bill 107 accelerated the 20 percent requirement to 2010.

The CPUC drafted a RPS workplan in 2008 and developed stakeholder consensus prior to finalizing the plan. The Governor's office issued Executive Order S-14-08 to solidify the target by directing state government entities to work together in achieving 33 percent by 2020 RPS goals.

Pursuant to Executive Order S-21-09, CARB was directed to use its AB 32 authority to prepare regulations to supplement the RPS with a Renewable Energy Standard that will result in a total renewable energy requirement for utilities, both public and investor-owned, of 33 percent by 2020[5].

5.17.1.3.5 Electricity Greenhouse Gas Emission Standards Act (Senate Bill [SB] 1368). Enacted on September 29, 2006, SB 1368 (Perata, Chapter 598, Statutes of 2006) prohibits load-serving entities (LSE)–including investor-owned utilities, energy service providers, and community choice aggregators–from entering into a long-term financial commitment for baseload generation unless it complies with a GHG emissions performance standard (EPS).

On January 25, 2007, the CPUC adopted an interim GHG EPS requiring that all new long-term commitments for baseload generation serving California consumers have CO_2 emissions no greater than 1,100 pounds (0.5 MT) per megawatt hour (MWh), which is roughly the amount emitted by a natural gas combined cycle (NGCC) unit (CPUC Decision 07-01-039). "New long-term commitment" refers to new plant investments (new construction), new or renewal contracts with a term of five years or more, or major investments by the utility in its existing baseload power plants. The CPUC may revisit the EPS once an emissions cap is operational in California as required by AB 32.

[5] A CARB website regarding the Renewable Energy Standard rulemaking process is available at http://www.arb.ca.gov/energy/res/res.htm.

The CPUC has jurisdiction over the energy commitments of investor-owned utilities. SB 1368 further authorizes the CPUC to implement and enforce the EPS for electric service providers (competitive retail providers delivering energy to consumers within the service territories of the investor-owned utilities) as well as any potential community choice aggregators (CCA) that may form in the future (there are currently no CCAs operating in California, though a number are in the planning stages). SB 1368 also grants specific authority to the California Energy Commission (CEC) to implement and enforce an EPS for the municipal utilities in California. The CPUC and the CEC are working closely together to ensure that the standards adopted are as consistent as possible.

5.17.1.3.6 SB 97 CEQA Guideline Development for Greenhouse Gas Emissions and Climate Change. Senate Bill 97 (Dutton-CEQA-Greenhouse gas emissions), signed by the Governor on August 24, 2007, directed the Office of Planning and Research to develop guidelines by July 1, 2009, for feasible mitigation for GHG emissions. On April 13, 2009 after public workshop and peer review, the Governor's Office of Planning and Research sent proposed amendments for CEQA Guidelines to the Secretary of Natural Resources for promulgation. On December 30, 2009, the Natural Resources Agency adopted the CEQA Guidelines Amendments addressing GHG emissions. The California Office of Administrative Law filed the Amendments with the Secretary of State for inclusion in the California Code of Regulations on February 16, 2010. The Amendments will become effective on March 18, 2010. The Amendments make changes to sections of the existing guidelines including: the determination of significance as well as thresholds; statements of overriding consideration; mitigation; cumulative impacts; and specific streamlining approaches.

The Amendments require a lead agency to make a good-faith effort, based on the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project. The Amendments give discretion to the lead agency whether to: 1) use a model or methodology to quantify greenhouse gas emissions resulting from a project, and which model or methodology to use; and/or 2) rely on a qualitative analysis or performance-based standards.

Further, the Amendments identify three factors that should be considered in the evaluation of the significance of GHG emissions:

1. The extent to which a project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting
2. Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project

3. The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions

The Amendments do not recommend a specific threshold of significance, but rather call on lead agencies to establish significance thresholds for their respective jurisdictions. The Amendments also clarify that the effects of GHG emissions are cumulative, and should be analyzed in the context of the CEQA requirements for cumulative impact analysis.

5.17.1.3.7 CARB Recommended Approach for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act. On October 24, 2008, CARB released their Preliminary Draft Staff Proposal of GHG significance thresholds. For industrial projects that are not exempt from CEQA under existing statutory or categorical exemptions, GHG impacts are less than significant if the project meets CARB performance standards for transportation and construction-related emissions and the project, with mitigation, will emit no more than approximately 7,000 metric tons of CO_2e/yr for operational emissions (excluding transportation) including the following sources:

- Combustion-related components/equipment
- Process losses
- Purchased electricity
- Water usage and wastewater discharge

The draft proposal is currently under review pending approval by multiple agencies.

5.17.1.3.8 Assembly Bill 1493. California enacted AB 1493 (Pavely) in 2002. The bill required CARB to promulgate "regulations that achieve the maximum feasible and cost-effective reduction of greenhouse gas emissions from motor vehicles" not later than January 1, 2005. The regulations were intended to be applicable to new cars in the model year of 2009. CARB was required to consider these time constraints as well as "environmental, economic, social, and technological factors." CARB's regulations were also required to be "[e]conomical to an owner or operator of a vehicle, taking into account the full life-cycle costs of the vehicle." In 2004, the regulations were completed in CARB's Resolution 04-28.

Although setting emission standards for automobiles is solely the responsibility of USEPA, the Clean Air Act allows California to set state-specific emission standards for automobiles if California obtains a waiver from USEPA[6]. On July 1, 2009, USEPA granted California that waiver. A comparison between the AB 1493 standards and the Federal Corporate Average

[6] A comparison between the AB 1493 standards and the Federal Corporate Average Fuel Economy standards was completed by CARB and is available at http://www.arb.ca.gov/cc/ccms/ab1493_v_cafe_study.pdf.

Fuel Economy standards was completed by CARB and is available at http://www.arb.ca.gov/cc/ccms/ab1493_v_cafe_study.pdf.

5.17.1.3.9 Executive Order S-01-07. Established the Low Carbon Fuel Standard requiring a reduction in the carbon intensity of California's transportation fuels by at least 10 percent by 2020.

5.17.1.3.10 SB 375. Requires metropolitan planning organizations (MPOs) to include sustainable communities strategies (SCS) in regional transportation plans (RTPs) for the purpose of reducing greenhouse gas emissions.

SB 375 requires CARB to set regional targets for the purpose of reducing greenhouse gas emissions from passenger vehicles, for 2020 and 2035. If regions develop integrated land use, housing and transportation plans that meet the SB 375 targets, new projects in these regions can be relieved of certain review requirements of CEQA.

As per SB 375, CARB appointed a Regional Targets Advisory Committee (RTAC) on January 23, 2009 to provide recommendations on factors to be considered and methodologies to be used in CARB's target setting process. The RTAC was required to provide its recommendations in a report to CARB by September 30, 2009. CARB must propose draft targets by June 10, 2010, and adopt final targets by September 30, 2010.

5.17.1.4 Local

5.17.1.4.1 County of Los Angeles Ordinances. On November 22, 2008, the County adopted three ordinances to establish development standards for green building, low-impact development, and drought tolerant landscaping for projects constructed after January 1, 2009. The green building development standards address energy conservation, outdoor and indoor water conservation, resource conservation, and tree planting. Among other provisions, the Green Building Code (Code) requires: 1) tree plantings with all residential projects and some qualifying non-residential (commercial and agricultural); and 2) enhanced energy efficiency standards for non-residential buildings (depending on the floor area). Waivers for the tree planting standards can be granted to certain projects based on size, location, and consistency with the Code objectives (e.g., personnel cooling, mitigation of heat island effect, etc.). The Los Angeles County Department of Public Works is expected to grant a waiver of the tree planting requirement for this Project.

5.17.1.4.2 Antelope Valley Air Quality Management District. The Antelope Valley Air Quality Management District (AVAQMD) has not adopted any policy or regulation pertaining to GHG/climate change.

5.17.1.4.3 Kern County Air Pollution Control District. The Kern County Air Pollution Control District (KCAPCD) has not adopted any policy or regulation for GHG/climate change.

5.17.1.4.4 County of Kern General Plan. Kern County has not adopted any policy or regulation for GHG/climate change as part of its General Plan.

5.17.2 Environmental Setting

5.17.2.1 Introduction

While climate change has been a concern since at least 1988 as evidenced by the establishment of the United Nations and World Meteorological Organization's Intergovernmental Panel on Climate Change (IPCC), the efforts devoted to greenhouse gas emissions reduction and climate change research and policy have increased dramatically in recent years.

Global climate change and *global warming* are both terms that describe changes in the earth's climate. *Global climate change* is a broader term used to describe any worldwide, long-term change in the earth's climate. This change could be, for example, an increase or decrease in temperatures, the start or end of an ice age, or a shift in precipitation patterns. The term *global warming* is more specific than global climate change and refers to a general increase in temperatures across the earth. Though global warming is characterized by rising temperatures, it can cause other climatic changes, such as a shift in the frequency and intensity of rainfall or hurricanes. Global warming does not necessarily imply that all locations will be warmer. Some specific, unique locations may be cooler even though the world, on average, is warmer. All of these changes fit under the term, global climate change.

While global warming can be caused by natural processes, the IPCC reports conclude that there is a scientific consensus that current global warming is the result of human activities. This man-made, or anthropogenic, warming largely is caused by increased emissions of "greenhouse gases," which keep the earth's surface warm. This is called "the greenhouse effect." The GHG effect and the currently perceived relationship to GHG emissions are described below.

Global temperature increases may have a series of significant negative impacts on the health of California residents and the California economy. One result of the higher temperatures caused by global climate change may be compromised air quality. Warmer temperatures can cause more ground level ozone, a pollutant that causes eye irritation and respiratory problems. Another impact may result due to California's primary reliance on snowmelt for its drinking water and summertime irrigation water. Global climate change could alter the seasonal pattern of snow accumulation and snowmelt and threaten the availability of water.

Climatic changes also would affect agriculture, a major California industry, which could result in economic losses.

Global warming and climate change have received substantial public attention for more than 15 years. For example, the United States Global Change Research Program was established by the Global Change Research Act of 1990 to enhance the understanding of natural and human-induced changes in the Earth's global environmental system, to monitor, understand and predict global change, and to provide a sound scientific basis for national and international decision making. Even so, the analytical tools have not been developed to determine the effect on worldwide global warming from a particular increase in GHG emissions, or the resulting effects on climate change in a particular locale. The scientific tools needed to evaluate the impacts that a specific project may have on the environment are not expected to be available in the near-term future.

The degree to which individual GHG constituents contribute to global warming varies depending on the compound in question and its residence time in the atmosphere. GHG emissions are commonly expressed in units of million metric tons of carbon dioxide (CO_2) equivalence (MMT CO_2e) per year, which incorporates all GHG components and their global warming potentials (GWP) in a single expression. A metric ton (also called a "tonne") is 1,000 kilograms or about 2,200 pounds or 1.1 English or long tons. In some reports, the international system unit of Teragrams of CO_2 equivalence, or Tg CO_{2e}, is used. A Teragram is equal to one million metric tons.

California's GHG emissions are large in a global context and continually growing. By 2004, the State's GHG annual emissions increased to approximately 484 MMT CO_2e per year or roughly one percent of the 49,000 MMT CO_2e emitted globally (IPCC 2007). Statewide emissions of GHGs in 1990 and 2004 are summarized in Table 5.17-1. Emission sources are broken out into seven major categories: transportation, electricity generation, industrial, residential, agriculture, commercial, and forestry. Regulatory efforts aimed at reducing GHG emissions reviewed above in Section 5.17.1 are directed at all sources. They involve reducing emissions from individual point sources, such as power plants and manufacturing plants, and reducing emissions associated with transportation. The latter vehicle emissions are addressed through regional planning efforts to provide efficient transportation systems and to encourage the use of alternate transportation, as well as through improved vehicle technology. The AV Solar Ranch One Project is typical of efforts to increase the use of renewable energy and reduce GHG emissions associated with electricity generation.

5.17.2.2 AV Solar Ranch One Project Site and Off-site Transmission Line

The environmental setting for the AV Solar Ranch One Project includes the regional high desert area and the regulatory context of the state, Los Angeles County, and AVAQMD. A

review of the databases of the CEC, CARB, and the AVAQMD determined that there is currently no GHG emissions inventory for the Project region. No accurate estimates of future average temperatures in the Project region (Western Mojave Desert) can currently be made with or without the proposed Project. Thus, there are no site-specific aspects of the environmental setting that have a direct bearing on the assessment of GHG emissions and climate change issues.

5.17.3 Project Impacts

5.17.3.1 Methodology and Significance Criteria

There is no applicable threshold of significance for GHG emissions established by the state or one that is locally applicable (i.e., Los Angeles County or AVAQMD). In the absence of adopted thresholds, this EIR applies a threshold of significance where the proposed Project's GHG emissions would be considered significant if they would not be generally consistent with relevant State and local goals, strategies, and control measures to reduce GHG emissions and mitigate the impacts of climate change.

To address these criteria, the GHGs contributing to climate change have been quantified for the proposed Project. This includes identification of the gases and the methodology and assumptions used to quantify estimated GHG emissions to the atmosphere from the Project.

5.17.3.1.1 Greenhouse Gas Identification. GHGs contribute to the natural greenhouse effect, such as CO_2, CH_4, N_2O, and H_2O, as well as gases that are man-made and emitted through the use of modern industrial products, such as HFC, CFC, and SF_6. These last two families of gases, while not naturally present, have properties that also cause them to trap infrared radiation when they are present in the atmosphere, thus making them GHG. These six (not including H_2O) gases comprise the major GHGs that are recognized by the Kyoto Protocol, which is an international agreement (1997) linked to the United Nations Framework Convention on Climate Change, and California law[7]. One GHG not recognized by the Kyoto Protocol or AB 32 is atmospheric water vapor, as there is no obvious correlation between water vapor concentrations and specific human activities. Water vapor appears to act in a feedback manner where higher temperatures lead to higher water vapor concentrations, which in turn cause more global warming.

The effect each of these gases has on global warming is determined by a combination of:

- The volume of their emissions
- Their global warming potential (GWP)

[7] California Health & Safety Code § 38505(g).

GWP indicates, on a pound for pound basis, how much a gas will contribute to global warming relative to how much warming would be caused by the same mass of CO_2. Methane and nitrous oxide are substantially more potent than CO_2, with GWPs of 21 and 310, respectively. Sulfur hexafluoride and fluoromethane have GWPs of 23,900 and 6,500, respectively. GHG emissions typically are measured in terms of mass of CO_2e emissions, which is the product of the mass of a given GHG and its specific GWP.

The most important GHG in human-induced global warming is CO_2. While many gases have much higher GWPs, CO_2 is emitted in vastly higher quantities. Fossil fuel combustion, especially for the generation of electricity and powering of motor vehicles, led to substantial increases in CO_2 emissions, and thus substantial increases in atmospheric CO_2 concentrations. In 2005, atmospheric CO_2 concentrations were about 379 parts per million (ppm), over 35 percent higher than the pre-industrial era concentrations of about 280 ppm. In addition to the sheer increase in volume of its emissions, CO_2 is a major factor in human-induced global warming because of its lifespan in the atmosphere of 50 to 200 years.

The second most prominent GHG, CH_4, also has increased due to human activities such as rice production, degradation of waste in landfills, cattle farming, and natural gas mining. In 2005, atmospheric levels of CH_4 were more than double pre-industrial levels, up to 1,774 parts per billion (ppb), as compared to 715 ppb. Methane has a relatively short atmospheric lifespan of only 12 years (IPCC 2007), but has a higher GWP than CO_2.

N_2O concentrations have increased from about 270 ppb in pre-industrial times to about 319 ppb by 2005. Most of this increase can be attributed to agricultural practices (such as soil and manure management), as well as fossil fuel combustion and the production of some acids. N_2O's 120-year atmospheric lifespan (IPCC 2007) increases its role in global warming.

Water vapor is the most abundant and variable greenhouse gas in the atmosphere. It is not considered a pollutant; in the atmosphere it helps maintain a climate necessary for life. The main source of water vapor is evaporation from the oceans (approximately 85 percent). Other sources include evaporation from other water bodies, sublimation (phase change directly from solid to gas) from ice and snow, and transpiration from plant leaves[8].

Besides CO_2, CH_4, and N_2O, there are several gases and categories of gases that were not present in the atmosphere in pre-industrial times but now exist and contribute to global warming. These include CFCs, used often as refrigerants, and their more stratospheric-ozone-friendly replacements, HFCs. Fully fluorinated species, such as SF_6 and tetrafluoromethane (CF_4), are present in the atmosphere in relatively small concentrations, but have extremely long life spans of 3,200 and 50,000 years, respectively, also making them potent GHG (IPCC 2007). The electric utility industry uses high voltage circuit breakers and gas insulated

[8] Hendrix et. al. 2007.

switchgear with SF_6 as a medium due to its dielectric and arc quenching properties. The proposed Project on-site substation would utilize SF_6 in a manner that complies with applicable State standards.

5.17.3.1.2 Quantification Methodology. The quantification of estimated GHGs from the proposed Project is based on methodologies of the CARB, the California Climate Action Registry (CCAR) (CCAR 2009), and the Climate Registry. These methodologies were developed for estimating inventories of past or current emissions. However, they are applicable for future projects based on predictive fuel use or engine activity. CARB's OFFROAD and EMFAC software databases allow the prediction of the CO_2 emission factors from internal combustion engines associated with mobile sources (on- and off-road). These databases are predictive software that characterize the emissions from the off-road mobile and on-road mobile sources within a certain time frame and California air basin. Specifically, CO_2 emissions are based on grams of CO_2 per mile for on road vehicles and grams of CO_2 per horsepower hour consumed for off-road vehicles. Emissions of N_2O and CH_4 were based on predictive tools in the CCAR General Reporting Protocol (CCAR 2009) and its updates. The emissions of the N_2O and CH_4 are multiplied by their GWP from CCAR to provide CO_2e estimates. These are added to the direct CO_2 emissions for total direct CO_2e emissions.

Construction. The proposed Project would emit GHG emissions during the temporary Project construction phase (up to 38 months). By convention, construction-related GHG emissions are amortized over the entire project lifecycle and added to annual emissions from operations. The emission estimates include the construction workforce and truck transport emissions to and from the site with assumed distances as described in Appendix D of this EIR. The estimates do not include rail or ship transport of cable, steel, electrical equipment, etc. to California or cement manufacture for use in the proposed on-site concrete batch plant due to a current lack of information regarding these details. Transport fleets, manufacturers, and other entities are also responsible for preparing their own GHG inventories and reduction programs under other regulations or voluntary programs. To count such emissions again in association with a specific project would duplicate the values compiled for larger or statewide inventories.

Indirect emissions are estimated for the electricity used to operate the concrete batch plant and to pump on-site groundwater during the construction period for dust control. Use of grid-supplied electric energy during construction would result in indirect GHG emissions because a portion of grid-supplied energy is generated using fossil-based primary energy sources that emit GHG emissions in the combustion process. Those emissions are indirectly attributed to the end-user of the electric energy. Because multiple electric generation facilities with varying GHG emission profiles are interconnected to the electrical grid providing power to the Project, the specific facility supplying electricity to the Project during construction cannot be readily determined. GHG emissions associated with the use of electric energy are

approximated by applying a regional average GHG emission factor. These regional emission factors are provided by the USEPA's Emissions & Generation Resource Integrated Database (eGRID). The Project is located within eGRID's WECC California subregion, which is assigned the acronym CAMX.

The GHG emissions estimated for construction activities are provided in Table 5.17-2. The detailed calculations and assumptions are provided in Appendix D. Unlike criteria pollutants that are analyzed on a daily and annual basis, GHG emissions are summed for the entire duration of construction activities and amortized over the Project lifetime (i.e., 30 years). Amortized construction phase GHG emissions are then added to operational phase GHG emissions (reductions).

Similar to the air quality analysis (refer to Section 5.6), the worst-case construction scenario of installing fixed mount pile foundations for the solar panels was selected for the presentation of construction related GHG emissions. The concrete ballast foundation option would result in lower GHG emissions (refer to Appendix D).

Operation. During operation of the Project, approximately 93 MT of CO_2e per year of GHG emissions in the form of SF_6 equipment leak emissions are predicted to occur from the proposed on-site electrical substation. Inspection and maintenance activities of the solar arrays and grounds maintenance (water trucks and tractors) would also result in a small amount of GHG emissions (estimated at 48 metric tons of CO_2e per year). These emissions would result directly from the combustion of carbon-based fuels in on-site truck engines. Similarly, daily employee commuting in on-road licensed vehicles to the site and monthly testing of the emergency fire water pump engine would result in fuel combustion derived GHG emissions. The O&M building would not have direct GHG emissions as it would be powered by electricity. Any space heating needs for the O&M building would be a parasitic load from the net facility electrical generation output.

The indirect GHG emissions decrease that would result from the expected 30-year operation of this proposed renewable energy project were calculated, using the Applicant's estimate of the renewable energy enabled by the Project (628,000 MWh/yr) and the USEPA eGRID estimate of CO_2e emissions per MWh in the WECC California subregion (see Appendix D). The calculations assume that 5 percent losses would occur due to transmission losses, degradation of the PV panels, and parasitic losses from internal use. These calculations demonstrate that the Project's construction and operating GHG emissions would be more than offset by the Project providing substantial renewable solar energy to the electrical grid. Entire construction and operational phase GHG emissions from the proposed Project (14,910 and 17,820 metric tons CO_2e over 30 years for ballast and pile foundation cases, respectively) are estimated to be offset within 2 months of the start of full-scale operation

when compared to the GHG emissions that would be associated with generation from a natural gas power plant with equivalent electrical output.

The estimated annual direct and indirect operational GHG emissions are provided in Table 5.17-3 with the calculations and assumptions for the direct operating emissions provided in Appendix D.

5.17.3.2 Impact Analysis

This section addresses potential climate change impacts for both the construction and operational phase of the proposed Project. The construction emissions of GHG are assumed to occur over a 38-month period. It is estimated that 70 percent of the Project-related GHG emissions would occur during the construction phase (i.e., less than 30 percent of GHG emissions would occur during the operational phase (see Table 5.17-3).

The proposed Project is fully consistent with the CARB Scoping Plan to implement AB 32 and its projected implementation measures. In order to meet the AB 32 GHG emissions reduction mandate, the Scoping Plan relies on achievement of the 33 percent RPS by 2020. The proposed Project and other similar projects are essential to achieving the RPS.

Further, the proposed Project is reasonably expected to displace regionwide and statewide emissions of GHGs over the expected 30-year life of the Project. Refer to Table 5.17-4 for a summary assessment of the Project's consistency with local renewable energy and climate change-related policies. The proposed Project is reasonably expected to reduce CO_2e emissions by over 196,000 $MTCO_2e$ per year during operation compared to emissions for an equivalent electrical output after applying emission factor data for the eGRID WECC California subregion (USEPA 2009), as described in Section 5.17.3.1.2 Quantification Methodology. Refer to Table 5.17-3 for more information. Enhanced energy efficiency standards would be included in the O&M building design associated with building code requirements and programs.

5.17.3.2.1 Indirect Impacts. It is reasonably expected that the Project would result in a net decrease of GHG emissions within California due to its contribution to the achievement of the RPS and the related reduction in the carbon intensity of statewide energy generation. Indirect impacts of the proposed Project on GHG emissions would be expected to be beneficial relative to global climate change issues.

GHG emissions would be generated for the production of PV panels, supports and hardware, electrical wires and equipment, and foundations, etc. Studies for large scale solar PV deployment projects indicate these manufacture-based GHG emissions for solar panels are smaller than the GHG emissions that would be displaced by the solar energy facilities over a

30-year lifetime[9]. Lifecycle studies require vendor-specific manufacturing metrics and other refined data that are not available for the proposed Project. However, based on available studies, the GHG emissions that would be displaced by the proposed Project would exceed the emissions associated with the manufacturing of facility components.

5.17.4 Cumulative Impacts

There are multiple other projects in the Antelope Valley region that, if approved and built, would result in additional GHG emissions. Section 4.6 of this EIR provides a listing of projects that have the potential to result in cumulative impacts. Many of the other potential projects in the Antelope Valley and southern Kern County are also renewable energy projects. These projects, if approved and built, would be expected to contribute to an increase in RPS and a resultant displacement of GHG emissions from fossil fuel power plants. Potential cumulative impacts of the proposed Project with other renewable energy projects proposed in the Project region would be considered to be beneficial and result in a combined reduction in GHG emissions. The proposed Project alone would be expected to reduce CO_2e emissions by over 196,000 $MTCO_2e$ per year during operation compared to existing generation emissions for an equivalent electrical output using eGrid information (USEPA 2009). Refer to Table 5.17-3 for more information.

For all the reasons discussed herein, the proposed Project is generally consistent with relevant State and local goals, strategies, and control measures to reduce GHG emissions and mitigate the impacts of climate change. The proposed Project's cumulative GHG emissions and related climate change impacts would be less than significant.

5.17.5 Mitigation Measures

No mitigation measures are required specifically for GHG emissions/climate change. Mitigation related to air quality emissions would have beneficial effects to GHG emissions (primarily via energy efficiency). Refer to Section 5.6 (Air Quality) for additional information.

5.17.6 Level of Significance after Mitigation

GHG emissions/climate change related impacts associated with construction and operation of the proposed Project are less than significant and no mitigation is required. The proposed 230-MW renewable energy Project would be expected to reduce GHG emissions in the long-term and assist California and CARB meet GHG emission reduction goals in accordance with Executive Orders S-3-05, S-14-08, S-21-09, AB 32, and SB 1368.

[9] Brookhaven National Laboratory 2008; Ito 2008.

5.17.7 References

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TABLE 5.17-1
GREENHOUSE GAS EMISSIONS BY SECTOR IN 1990 AND 2004[1,2]

	1990		2004	
Sector	MMT CO_2e	Percent of Total Gross Emissions	MMT CO_2e	Percent of Total Gross Emissions
Agriculture	23.4	5%	27.9	6%
Commercial	14.4	3%	12.8	3%
Electricity generation	110.6	26%	119.8	25%
Forestry (excluding sinks)	0.2	<1%	0.2	<1%
Industrial	103.0	24%	96.2	20%
Residential	29.7	7%	29.1	6%
Transportation	150.7	35%	182.4	38%
Forestry sinks	-6.7	–	-4.7	–

1 Source: CARB 2008, 2009.

2 The remaining 1.3 MMT CO_2e and 16.0 MMT CO_2e for 1990 and 2004, respectively, are from unspecified fuel combustion and ozone depleting substance (ODS) substitute use, which is not attributed to an individual sector. Percents may not total 100 due to rounding.

TABLE 5.17-2
ESTIMATED TOTAL GREENHOUSE GAS EMISSIONS
FOR CONSTRUCTION PHASE[1]

Activity	CO_2e Emissions Pile (Metric Tons)	CO_2e Emissions Ballast (Metric Tons)
Construction equipment (on-site)	5,766	3,369
Mobile sources (off-site)	6,410	5,788
Subtotal	12,176	9,157
Indirect emissions from grid-supplied electricity for water pumping and other construction-related power needs	148	277
Total	12,324	9,434
Amortized over 30 years (tons/year)	411	314

[1] Refer to Appendix D of EIR for calculations.

TABLE 5.17-3
DIRECT AND INDIRECT GREENHOUSE GAS EMISSION ESTIMATES (METRIC TONS CO_2e/YEAR)

Emissions	GHG Emissions[1,2]
Operational-phase Emissions	
SF_6 leaks	92
O&M vehicles	75
Fire water pump	4
Total direct	171
Indirect emissions (water pumping)	12
Total direct and indirect emissions	183
Amortized Construction Emissions (Pile)[3]	411
Estimated displaced grid power emissions[4]	196,950
Net difference[4]	196,356

1 Refer to Appendix D of EIR for calculations.

2 Based on eGrid information (USEPA 2009).

3 Represents worst-case emissions scenario from Table 5.17-2.

4 Estimated Project-related reduction in annual GHG emissions (CO_2e) in metric tons over 30-year Project life (i.e., estimated displacement of 5,890,680 metric tons of CO_2e over 30 years).

TABLE 5.17-4
CONSISTENCY WITH POLICIES INDIRECTLY RELATED TO CLIMATE CHANGE

Policy	Relationship of Project to Policy
SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS POLICIES AND GOALS	
Regional Transportation Plan	
RTP G5 – Protect the environment, improve air quality and promote energy efficiency.	Consistent. The Project will use renewable energy for its internal use when available.
Compass Growth Visioning	
GV P4.3 – Develop strategies to accommodate growth that uses resources efficiently, eliminate pollution and significantly reduce waste.	Consistent. The Project will not generate or require a demand for resources.
GV P4.4 – Utilize "green" development techniques.	Consistent. As required by the County of Los Angeles, the Project will implement the Green Building Ordinance guidelines, as applicable.
Climate Action Scoping Plan	
CASP 4 – Increase Renewable Portfolio Standard (RPS) for California.	Consistent. This Project will be instrumental to the achieving the RPS goal in the plan.
Conservation, Open Space, and Recreation	
2. Support the conservation of energy and encourage the development and utilization of new energy sources including geothermal, thermal waste, solar, wind and ocean-related sources.	Consistent. The proposed Project is the development of a 230-MW photovoltaic solar facility. Therefore, the proposed Project utilizes new energy sources.
3. Promote the use of solar energy to the extent possible.	Consistent. The proposed Project is the development of a 230-MW photovoltaic solar facility.
ANTELOPE VALLEY AREA WIDE PLAN	
Energy Consumption	
217. Promote use of alternative energy sources (including solar and wind) for heating and cooling.	Consistent. The proposed Project is the development of a 230-MW photovoltaic solar facility. Therefore, the proposed Project utilizes new renewable energy sources.

5.16 LAND USE

This analysis focuses on the proposed AV Solar Ranch One Facility and the off-site 230-kV transmission line, and the potential impacts they may have directly on region-wide land use and planning issues. The following discussion addresses land use-related CEQA issues, including potential impacts to land use plans or policies, communities, and consistency with other applicable plans.

5.16.1 Regulatory Setting

The proposed Project is required to comply with the applicable provisions of the Los Angeles County General Plan land use designations and policies, the Los Angeles County Green Building Code, and the Zoning Ordinance. The northern portion of the proposed off-site 230-kV transmission line is located in southern Kern County, thus the applicable provisions of the Kern County General Plan are applicable to the transmission line.

5.16.1.1 Federal

No applicable regulatory statutes were identified.

5.16.1.2 State

With the exception of CEQA, no applicable State regulatory statutes were identified.

5.16.1.3 Local

5.16.1.3.1 Southern California Association of Governments. The Southern California Association of Governments (SCAG) is responsible for most regional planning in Southern California (Ventura, Los Angeles, Riverside, San Bernardino, Orange, and Imperial counties). SCAG has been preparing long-range growth and development plans for the SCAG region since the early 1970s. SCAG documents provide a framework to coordinate local and regional decisions regarding future growth and development. An important component of this process is the preparation of growth forecasts at intervals ranging from three to five years.

SCAG has developed a Regional Comprehensive Plan (RCP) that recommends methods by which local governments can redirect regional growth to minimize traffic congestion and better protect environmental quality. While SCAG has no authority to mandate implementation of the RCP, the Plan's goals have implications upon the land use composition of the County of Los Angeles.

SCAG's Regional Transportation Plan (RTP) is a long-range (minimum 20-year) plan that provides a blueprint for future transportation improvements and investments based on

specific transportation goals, objectives, policies, and strategies. The RTP is based on Federal transportation law requiring comprehensive, cooperative, and continuous transportation planning. SCAG meets these requirements by developing comprehensive transportation plans that include all surface transportation modes (multi-modal planning), to ensure efficient people and goods movements throughout the region.

5.16.1.3.2 County of Los Angeles General Plan. On November 25, 1980, the County of Los Angeles approved the General Plan. The General Plan Land Use Element includes policies and land use maps to guide the future development of Los Angeles County. The General Plan includes a series of area plans which address specific policies for each of the identified geographic areas. The AV Solar Ranch One Project is located within the Antelope Valley Areawide General Plan of the Los Angeles County General Plan.

5.16.1.3.3 County of Los Angeles Zoning Ordinance. Development of the Project site is regulated by the County of Los Angeles zoning ordinance (Title 22). This ordinance contains the regulatory framework that specifies allowable uses for real property and development intensities; the technical standards such as site layout, building setbacks, heights, lot coverage, parking, etc.; aesthetics related to physical appearance, landscaping and lighting; a program that implements policies of the General Plan; and the procedural standards for amending or establishing new zoning regulations, including Conditional Use Permits for certain uses that have been deemed to require an additional level of review prior to permitting.

5.16.1.3.4 Ordinances for Green Building, Low Impact Development, and Drought-Tolerant Landscaping. As an amendment to Title 12-Environmental Protection, Title 21-Subdivisions, and Title 22-Planning and Zoning of the Los Angeles County Code, the County ordinance amendments establish the Low Impact Development (LID), Drought-Tolerant Landscaping, and Green Building Standards in unincorporated Los Angeles County.

The main objectives for the LID standards are to protect surface and groundwater quality, maintain the integrity of ecosystems, and preserve the physical integrity of receiving waters by controlling rainfall and stormwater runoff at or close to the source. LID incorporates multifunctional site design elements or Best Management Practices (BMPs) for stormwater detention and water quality improvements. As stated in Ordinance 12.84.440(C)2, for non-residential developments:

- The excess volume (as defined in 12.84.420 to be the additional volume of stormwater caused by development; excess volume is determined be calculating the difference in the volume of runoff under undeveloped and post-developed conditions, using the water quality design storm event) from each lot upon which such development is occurring shall be infiltrated at the lot level, or in the alternative, the excess volume from the entire

development site, including streets and public right-of ways, shall be infiltrated in sub-regional facilities. The tributary area of a sub-regional facility shall be limited to 5 acres, but may be exceeded with approval of the Director (Department of Public Works). When infiltration of all excess volume is not technically feasible, on-site storage, reuse, or other water conservation uses of the excess volume is required and shall be implemented as authorized by the Director in accordance with the requirements and provisions in the LID Standards Manual.

- The stormwater runoff from the water quality design storm event associated with the developed site hydrology must be treated to the satisfaction of the Director before discharge.

The Drought-Tolerant Landscaping standards are intended to help conserve water resources by requiring landscaping that is appropriate to the region's climate, and to the nature of a project's use. All projects are to comply with Section 22.52.2230, which states:

- The total landscaped area of a lot or parcel of land on which a project is situated shall satisfy the following:
  - A minimum of 75 percent of such total landscaped area shall contain plants from the drought-tolerant plant list;
  - A maximum of 25 percent of such total landscaped area shall consist of turf, however, in no event shall turf be planted in strips that are less than five feet wide, and in no event shall the total landscaped area contain more than five thousand square feet of turf;
  - All turf in such total landscaped area shall be water-efficient. The green building technical manual shall contain a list of turf that meets this requirement; and
  - The plants in such total landscaped area shall be grouped in hydrozones in accordance with their respective water, cultural (soil, climate, sun, and light) and maintenance requirements.

For buildings constructed after January 1, 2009, the Green Building Development standards will apply to these developments. Standards address energy conservation, outdoor and indoor water conservation, resource conservation, and tree planting. Under Section 22.52.2130 General Provisions, Table 22.52.2130-1 summarizes general green building requirements for a project.

5.16.1.3.5 <u>County of Kern General Plan</u>. Pursuant to the California Government Code, Section 65302, the Kern County General Plan provides the foundation for physical development of all land area under its jurisdiction. The General Plan identifies the community's physical development goals relating to environmental, economic, and other

factors; incorporates policies for maintaining or improving character of existing developed uses; provides consideration of local conditions affecting physical development and change to ensure that problems are analyzed within the context of local, regional, statewide, and national goals and policies; and provides information to citizens of the community about the planning and decision-making process of the local government.

The Kern County General Plan includes Specific Plans and development guidelines that apply to communities. The proposed 230-kV transmission line is located within the Willow Springs Specific Plan area. The Specific Plan land use map identifies agricultural, public facilities and residential land uses for the area.

5.16.1.3.6 Kern County Zoning Ordinance. The Project 230-kV transmission line would be located within or adjacent to the public road right of way (ROW). In the latter case, the transmission line would traverse private lands regulated by the Kern County Zoning Ordinance (Title 19). This ordinance sets forth the land uses and land development regulations applicable within the unincorporated areas of Kern County. The Kern County Zoning Ordinance contains lists of "Permitted Uses," "Uses Permitted with a Conditional Use Permit," and "Prohibited Uses" within each of 21 zoning districts (i.e., zones). In addition, the zoning ordinance also contains 12 combining zoning districts (i.e., overlay zones). The uses allowed and regulations established by the combining zoning districts are added to the regulations of the base district with which the combining zone is associated.

5.16.2 Environmental Setting

The AV Solar Ranch One Project (Project) site is located along SR-138 west of the community of Antelope Acres, in the unincorporated area of Los Angeles County. The Project site is located approximately 15 miles northwest of downtown Lancaster, and approximately 1.5 miles south of Kern County. The area has been used for agricultural production since at least the 1950s. According to the Antelope Valley Area Plan, the three most predominant land uses in the Antelope Valley are agriculture, residential, and military reservations. The western, eastern and southern fringes of the Antelope Valley contain existing and historic agricultural areas. Major residential areas are found in the central and southern areas of the Antelope Valley. Military facilities are located adjacent to the residential areas.

5.16.2.1 Project Site

The Project site consists of approximately 2,100 acres of land that was previously used for agricultural activities. Two residences and related structures still exist on a portion of the site south of SR-138, which will be removed as part of the proposed Project activities. The Project site is located within the Antelope Valley Area Plan of the Los Angeles County General Plan and currently has a land use designation of "Non-Urban 1" (N-1) (see Figure

5.16-1, Existing General Plan Land Use Designations). Properties adjacent to the Project site are similarly assigned the N-1 land use designation.

Under the N-1 land use designation, allowable uses include:

- Local and highway oriented commercial and industrial uses to serve the needs of local residents and travelers
- Manufacturing activities requiring remote or secluded locations for product testing, development and storage, including storage of volatile/hazardous substances
- Public and semi-public uses typically located in non-urban environs, such as solid and liquid waste disposal sites, utility and communication installations, and schools and other public facilities necessary to serve non-urban populations
- Private and commercial recreational uses and specialized activities such as nature study centers, scientific research and educational camps, lodges and retreats, and visitor accommodations, services and facilities when designed in a manner compatible with and sensitive to surrounding scenic and natural resources
- Agricultural activities including livestock grazing, beekeeping, orchards, and vineyards
- Mineral extraction uses such as quarries and oil and gas fields

The current zoning on the Project site is Heavy Agricultural (A-2) (see Figure 5.16-2, Existing Zoning). Adjacent properties are assigned A-2 and A-1 (Light Agriculture) zoning designations. The current use of the surrounding properties includes vacant land and agricultural fields.

The Los Angeles County General Plan Hazard and Resources Map describe areas of special concern based on hazards or unique resources within each identified location. Mapped areas of concern include: Hillside Management Areas, Agricultural Opportunity Areas, Bikeway Routes, Floodplain Management Areas, Scenic Highway Corridors, Noise Management Areas, Seismic Safety Management Areas, and Significant Ecological Areas (SEAs). The Project is not located within a Hillside Management Area, Bikeway Route, designated riding and hiking trail system (County of Los Angeles Department of Parks and Recreation 2001), Floodplain Management Area, Scenic Highway Corridor, Noise Management Area, or SEA. The initial Project application for a conditional use permit (CUP) in March 2009 proposed a facility area that occupied an approximately 20-acre portion within the Joshua Tree Woodland Habitat (JTWH) Significant Ecological Area (SEA #60). Additionally, the proposed transmission line route included a segment that traversed approximately 0.4 mile of SEA #60 within the public road right of way (ROW) on the west side of 170th Street West. However, the Project configuration was subsequently revised such that no portion of the

Project area (facility and transmission line) is now located within SEA #60 (see Figure 5.16-3).

As currently proposed, portions of the northern and eastern Project site boundaries are adjacent to two SEA #60 areas (Figure 5.16-3). The County designates SEAs in order to maintain the County's diverse biotic communities by conserving and providing connectivity between valuable natural habitats. SEAs are not preserves; rather they are areas the County considers valuable for resource conservation, and may occupy private and public lands. Los Angeles County designates SEAs based on criteria classes (1 through 8), which are sequentially ordered in increasing availability of the resource. The LACDRP General Plan designated SEA #60 based on the Class 7 criterion, which is defined as "areas that would provide for the preservation of relatively undisturbed examples of the natural biotic communities in Los Angeles County" (LACDRP 1980).

The Project site is located within the vicinity of the Fairmont-Antelope Buttes SEA #57, which is located approximately 850 feet southeast of the site. As a result of the proposed Project configuration and setback design, any Project structures would be located more than 0.25 mile from SEA #57.

As part of the Los Angeles County General Plan Update Program, the County is proposing to revise the boundaries of the SEAs in the site vicinity (see Figure 5.16-4). Based on the Draft General Plan released in 2008, the Joshua Tree Woodland Habitat SEA boundaries are proposed to be revised to more accurately reflect existing JTWH. Additionally, the Fairmont – Antelope Buttes SEA would be incorporated into the San Andreas Rift Zone SEA. The SEA boundaries of this proposed modification would become adjacent to the Project site along 160th Street West. The General Plan Update Program is still in progress, and the proposed SEA boundary changes have not yet been adopted by the County.

5.16.2.2 Off-site Transmission Line Route

The proposed off-site 230-kV transmission line route extends approximately 3.5 miles north from the Project site to the planned SCE Whirlwind Substation located in southern Kern County. The proposed off-site transmission line route is located within, or on private lands adjacent to, the public road ROW along 170th Street West. The proposed transmission line route traverses multiple land use designations in Los Angeles and Kern County. Within Los Angeles County, the transmission line route traverses the "Non-Urban 1" (N-1) land use designation. In Kern County, the transmission line route traverses land uses consisting of Intensive Agriculture, Residential, and Other Facilities. Current zoning adjacent to the transmission line alignment is Light (A-1) and Heavy Agriculture (A-2) within Los Angeles County. In Kern County, current zoning along private lands potentially traversed are: Exclusive Agriculture with a combined district of Floodplain Secondary (A-FPS); Estate 2½

Acres, Residential Suburban Combining (E[2½] RS); and Estate 2.5 Acres, Residential Suburban Combining with a combined Floodplain Secondary (E[2 ½] RS FPS) zoning district (see Figure 5.16-2).

A total of approximately 0.5 mile of the proposed transmission line route within the public road ROW is adjacent to SEA #60 in Los Angeles County (see Figure 5.16-3). In addition, approximately 0.4 mile of the proposed transmission line route on the east side of 170th Street West in Los Angeles County is located near the portion of SEA #60 on the west side of 170th Street West.

5.16.3 Project Impacts

An assessment of the Project for consistency with policies of applicable land use plans is presented in Table 5.16-1. The Project can be viewed as being consistent with applicable land use policies. The table compares the Project to relevant policies in the Los Angeles County General Plan, as well as any relevant policies from the Antelope Valley Area Wide Plan, Green Building Ordinance, Kern County General Plan, and Southern California Association of Governments (SCAG) plans. Los Angeles County and Kern County General Plan policies deemed not applicable to the Project, based on proposed land uses are not included in this table.

5.16.3.1 Methodology and Significance Criteria

The Los Angeles County Planning Department has established CEQA significance thresholds. The Los Angeles County Planning Department's "Environmental Checklist" for the subject property (see Appendix A of this EIR) indicates that impacts related to the AV Solar Ranch One Project may be considered potentially significant if the proposed Project would:

- Be inconsistent with the plan designation(s) of the subject property
- Be inconsistent with the zoning designation of the subject property
- Be inconsistent with the SEA Conformance Criteria
- Physically divide an established community
- Be inconsistent with the County Green Building Ordinance

5.16.3.2 Impact Analysis

5.16.3.2.1 Criteria 1: Can the project be found to be inconsistent with the plan designation(s) of the subject property?

***Facility Site*.** Existing land uses on-site include vacant agricultural lands. Surrounding land uses include undeveloped and agricultural lands. The current land use for the Project site as set forth by the General Plan's Land Use designation is Non-Urban (N-1). The proposed Project is considered to be a utility installation and therefore would be consistent with the land use designation for the subject property. Additionally, the Project site is not located within designated riding and hiking trail systems (County of Los Angeles Department of Parks and Recreation 2001), or bikeway plans (LACDRP 1993). As a result, the Project would be consistent with the General Plan Land Use designation for the Project site.

***Off-site Transmission Line*.** The proposed off-site transmission line is a linear infrastructure that in and of itself would not result in any changes to the existing land use patterns in the Project area. The transmission line would be located within or on private lands adjacent to the public road right of way along 170th Street West. In Los Angeles County, the off-site transmission line route would traverse land use designation Non-Urban (N-1). According to the Antelope Valley Areawide General Plan, allowable uses in the N-1 designation include utility installations (LACDRP 1986). In Kern County, the transmission line would traverse the following designations: Residential (Map Code 5.6), Other Facilities (Map Code 3.3), and Intensive Agriculture (Map Code 8.1).

Intensive Agriculture (Map Code 8.1). The Kern County General Plan designates Intensive Agriculture for areas devoted to the production of irrigated crops or areas having a potential for such use. Allowable uses include, but are not limited to agricultural and livestock use, water storage and groundwater recharge, petroleum exploration and extraction, and public utility uses. The proposed transmission line would be expected to be considered an appropriate use as a public utility, and as a result, would be a consistent use in the Intensive Agriculture land use designation.

Other Facilities (Map Code 3.3). The Other Facilities land use designation assigns facilities used for public or semi-public services. Permitted uses include, but are not limited to airports, sewer farms, treatment plants, and water spreading areas. The area designated Other Facilities is an existing transmission line corridor. The proposed transmission line would be expected to be a use consistent with the Other Facilities designation.

Residential – Minimum 2.5 Gross Acres/Unit (Map Code 5.6). The Residential land use designation constitutes a single-family designation with rural service needs in the valley and desert regions. The existing use in this portion of the potential transmission line route consists of tilled agricultural land. The proposed transmission line would be a linear

infrastructure that would not change the existing land use pattern, and is therefore expected to be compatible with the Residential land use designation.

In summary, the transmission line is anticipated to result in less than significant effects to consistency with land use designations in Los Angeles and Kern counties.

5.16.3.2.2 Criteria 2: Can the project be found to be inconsistent with the zoning designation of the subject property?

Facility Site. The zoning designation for the Project site and surrounding area is Heavy Agriculture (A-2). The Project is considered equivalent to an electric generating plant. Under the County zoning code for the A-2 designation (Los Angeles County Code Section 22.24.150), electric generating plants and transmission substations are allowed in A-2 zones with the issuance of a Conditional Use Permit (CUP).

The CUP entitlement process involves a discretionary review of a project, whereby conditions of approval for the project would be assigned. A project's implementation of the conditions would be expected to minimize the project's potential effects such that the project could occur while still maintaining an acceptable level of compatibility with the designated zoning district. As a result, implementation of the proposed Project, as conditioned by the County, would be expected to be compatible with the Heavy Agriculture (A-2) zoning designation.

Off-site Transmission Line. The proposed off-site transmission line is a linear infrastructure that in and of itself would not result in any changes to the existing land use patterns in the Project area. The transmission line would be located within or adjacent to the public road ROW in Los Angeles County, and would be permitted as part of the Project CUP. Lands adjacent to the public road ROW consist of Light Agriculture (A-1) and Heavy Agriculture (A-2) zoning designations.

Light Agriculture (A-1). The County establishes agricultural zones to permit a comprehensive range of agricultural use in areas particularly suitable for agricultural activities. Electric transmission substations are permitted in A-1 zones as conditioned under a CUP.

Heavy Agriculture (A-2). As discussed previously, electric generating plants and transmission substations are allowed in A-2 zones with issuance of a CUP.

In Kern County, the transmission line would either be located within the public road ROW, or adjacent to the public road ROW on private property. The transmission line may potentially traverse private property having the following zoned designations: Estate 2.5 acres, Residential Suburban Combining (E[½] RS); Exclusive Agriculture, Floodplain

Secondary Combining (A FPS); and Estate 2.5 Acres, Residential Suburban Combining, Floodplain Secondary Combining (E [2½] RS FPS).

Exclusive Agriculture (A). The purpose of the A District is to designate areas suitable for agricultural uses and to prevent encroachment of incompatible uses onto agricultural lands and the premature conversion of such lands to non-agricultural uses. Permitted land uses in this District include utility lines and substations (Kern County Code Section 19.12.030). The proposed transmission line would be considered a consistent use under the A District.

Estate E (2 ½) District. The purpose of the E District is to designate areas suitable for larger lot residential living environments. Permitted land uses in this district include utility and communication facilities (Kern County Code Section 19.16.020). As a result, the proposed transmission line would be considered a consistent use under the E District.

Floodplain Secondary Combining District (FPS). The purpose of the FPS District is to protect the public health and safety and minimize property damage by designating areas that are subject to flooding with relatively low velocities or depths, and by establishing reasonable restrictions on land use in such areas. Permitted uses in an FPS District are those uses permitted by the base district (Kern County Code Section 19.72.020). The proposed transmission line would be considered a consistent use in the A District (base district); therefore, the proposed transmission line would also be consistent with the FPS District. The proposed transmission line would result in less than significant impacts to Flood Hazards, as discussed in Section 5.3.

Residential Suburban Combining District (RS). The purpose of the RS District is to expand the number and type of permitted domestic agricultural uses within rural residential areas. The RS Combining District may be combined with the Estate (E) zoning designation. The uses allowed include those allowed in the base district with which the RS District is combined (Kern County Code Section 19.60.020). Since the proposed transmission line would be considered a consistent use under the E District (i.e., the base district), the transmission line is expected to be consistent with the RS Combining District.

In summary, the proposed transmission line is anticipated to result in less than significant effects to consistency with zoning designations in Los Angeles and Kern counties.

5.16.3.2.3 Criteria 3: Can the project be found to be inconsistent with the SEA Conformance Criteria?

Facility Site. The proposed Project site is not located within an SEA boundary; therefore, the Project is not anticipated to cause significant impacts that would result in Project

inconsistency with the SEA conformance criteria. Refer to Section 5.16.3.2.6 for discussion regarding potential indirect impacts to adjacent SEAs.

Off-site Transmission Line. The proposed transmission line route is not located within an SEA boundary; hence, the transmission line is not expected to result in significant impacts to the SEA or be inconsistent with the SEA conformance criteria. Refer to Section 5.16.3.2.6 regarding potential indirect impacts to adjacent SEAs from the proposed transmission line.

5.16.3.2.4 Criteria 4: Would the project physically divide an established community?

Facility Site. The Project site is not located within an established community. The closest community to the Project site is Antelope Acres, which is located approximately 6 miles east of the site. The Project site is located in an area that has been characterized by agricultural uses for several decades and has been in transition to residential uses or vacant land over the past several years. Although there are several homes located to the west and north of the proposed Project site, the proposed Project site would not divide an established community and would not disrupt the physical arrangement of any community. Impacts are considered to be less than significant.

Off-site Transmission Line. The proposed transmission line would not result in physical improvements that would divide an established community.

5.16.3.2.5 Criteria 5: Can the project be found to be inconsistent with the County Green Building Ordinance?

Facility Site. On November 18, 2008, the County Board of Supervisors adopted amendments to Title 12, Title 21, and Title 22 of the Los Angeles County Code. The amendments are applicable to all development within the unincorporated areas of Los Angeles County constructed after January 1, 2009. The ordinance amendments establish three sections: Title 12 Chapter 12.84, LID; Title 22 Chapter 22.52 Part 21, Drought Tolerant Landscaping; and Title 22 Chapter 22.52 Part 20, Green Building Development standards. The Project would comply with applicable provisions in the ordinance amendments. As discussed in Section 5.3 (Flood Hazards), the Project drainage concept is designed in accordance with the Title 12 Chapter 12.84, LID standards. All on-site vegetation associated with proposed vegetated areas would be planted in accordance with Title 22 Chapter 22.52, Part 21, Drought Tolerant Landscaping requirements. The Project would recycle a minimum of 65 percent of non-hazardous construction and demolition debris (refer to Section 5.14 Utility Services), construct the office area of the O&M building in accordance with applicable green building standards, and would follow with other applicable provisions in accordance with Title 22 Chapter 22.52 Part 20, Green Building requirements. The Green Building Development standards also contain tree planting requirements stating that for each lot containing non-residential buildings, a minimum of three 15-gallon trees shall be planted

and maintained for every 10,000 square feet of developed area. The proposed 20,000 square foot Operations and Maintenance building and additional solar panel development is located on a single lot that is approximately 790 acres. Therefore, compliance with the Green Building Ordinance would require the planting of approximately 10,324 trees which would result in a substantial increase in the Project's water consumption, and would not be considered practical for achieving the intent of the ordinance. The Project is designed with an objective to conserve resources by producing electricity in a manner that consumes low quantities of fossil fuel and water and, thus, would be considered consistent with the intent of the Green Building Ordinance. In accordance with the ordinance provisions (Section 22.52.2150 of the County Code), the Project would obtain authorization to modify the tree planting requirements from the Director of Public Works. In lieu of the tree planting requirement, the Project would install a 10-foot-wide strip of landscaped screening vegetation along the facility fence lines on both sides of SR-138 as described in Mitigation Measure (MM) 5.10-4. Additionally, the Applicant proposes to offer to the County provision for landscaping maintenance along public right of way in the Antelope Valley. In summary, the Project would implement and comply with applicable requirements under the County LID, Drought-Tolerant Landscaping, and Green Building standards; therefore, the proposed Project would be considered to be consistent, and impacts would be less than significant.

Off-site Transmission Line. The proposed transmission line consists of poles and transmission components (i.e., conductor, ground wire/rod, etc.), and would not constitute as a building; thus, the County Green Building Ordinance is not applicable to the transmission line.

5.16.3.2.6 Indirect Impacts. The proposed Project can result in indirect impacts due to land use compatibility. Although the Project is consistent with the General Plan land use designation and zoning designation, some of the actual uses allowed in these zones may not be compatible with the Project.

"Compatible" land uses create less than significant environmental impacts with each other. "Incompatible" land uses create environmentally significant impacts between the land uses. In addition to the compatibility issues discussed below under this threshold, potential land use compatibility issues include such potential impacts as unsuitable noise levels, unsafe traffic conditions, offensive views, odors, and air/water quality degradation. Such compatibility issues can in some cases be quantified, but can become very subjective in other cases. What is a nuisance or concern about a neighboring use for one business owner or individual property owner may not be a problem for the next.

Potential Project impacts which could result in land use incompatibilities are identified and discussed in the following sections of this document: Flood Hazards (Section 5.3), Fire Hazards (Section 5.4), Water Quality (Section 5.5), Air Quality (Section 5.6), Biological

Resources (Section 5.7), Agricultural Resources (Section 5.9), Visual Qualities (Section 5.10), Traffic and Access (Section 5.11), Environmental Safety (Section 5.15), and Noise (Section 5.18). As analyzed in this EIR, Project impacts on these resources were all determined to be less than significant with mitigation. Thus, land uses are considered compatible and potential land use compatibility impacts are considered to be less than significant with mitigation for these topics.

Significant Ecological Areas are located north, south, east, and west of the Project boundary (see Figure 5.16-4). As shown, the site is adjacent to two SEA #60 areas along portions of the northern and northeast site boundary areas. Construction of the Project site would result in temporary fugitive dust, noise, and increased human presence. However, implementation of MM 5.6-2 (Develop and Implement Fugitive Dust Emission Control Plan) would reduce the impact of fugitive dust on the adjacent SEA areas; implementation of Mitigation Measure 5.18-1 would reduce construction equipment noise; and construction work would be temporary and transient, such that the effects of dust, noise, and human presence would occur over a short timeframe. As a result, the Project would result in less than significant indirect impacts to the biotic resources present in the adjacent SEAs. Additionally, the Project does not involve waterbodies, and would avoid watercourses; therefore, the Project would result in no indirect impacts to waterbodies and watercourses in the adjacent SEAs. During operation, the Project would generate minimal air emissions, as discussed in Section 5.6.3. Noise from solar panel electrical equipment would be localized and would not affect adjacent SEAs or other potentially sensitive receptors and adjacent areas, as discussed in Section 5.18.3. Human activity would be minimal, as most of the activity would occur in and around the O&M building, the facility would require a small number of permanent employees (16) to operate, and only infrequent maintenance activities would be required within the solar field. As a result, the Project would result in less than significant indirect impacts to consistency with the SEA design criteria.

As part of the CUP process, a CUP Burden of Proof is submitted to determine the project's consistency with the General Plan; compatibility with surrounding land uses; conditions to ensure compatibility; land suitability and physical constraints; project design; availability of adequate access, public services, and facilities to serve the development; and potential environmental impacts and mitigation measures. As shown in Table 5.16-1, the Project is consistent and compatible with adjacent and surrounding land uses, and therefore impacts are considered to be less than significant.

As discussed previously, two residential uses (refer to Figure 3-1, residences identified as R-7 and R-6) are located near the proposed transmission line route on 170th Street West near Gaskell Road in Kern County. The proposed transmission line route is located on the opposite side of 170th Street West from residence R-7, but traverses near the front of the residence R-6 on the east side of 170th Street West. The Applicant would need to obtain an

easement from the property owner for the transmission line route in this area. The terms of the easement would be expected to include provisions for moving, vacating, or demolishing residence R-6, as appropriate. As a result, the proposed transmission line would not be expected to result in significant indirect impacts to land use.

5.16.4 Cumulative Impacts

There are several other projects under consideration in the general area of the proposed AV Solar Ranch One Project that have the potential to result in cumulative effects with the proposed Project. The proposed Project is one of several proposed renewable development projects that would impact existing and proposed land uses within the general Project area. In addition, the Fairmont Butte Motorsports Park project is proposed within approximately 0.5 mile of the proposed Project on the south side of SR-138. Similar potential impacts can result from these projects as from the proposed Project with respect to consistency with General Plan Land Use plan and policies, and impacts to compatibility with surrounding land uses. All cumulative projects that may be approved and implemented would also assess potential impacts related to land use and planning. The proposed Project was found to have less than significant impacts related to zoning on site, consistency with General Plan Land Use Plan intent and Significant Ecological Area conformance criteria, dividing an existing community, and impacts to adjacent counties. Therefore, the proposed Project would not be expected to significantly contribute to potential cumulative land use related effects associated with other projects in the Project region.

5.16.5 Mitigation Measures

Although no significant Project impacts to land use have been identified, the following mitigation measure shall be implemented to ensure compliance with and uphold the intent of the County Green Building Ordinance.

Mitigation Measure 5.16-1: Tree Planting Modification. Prior to issuance of a grading permit, the applicant shall obtain authorization to modify the tree planting requirements of the Green Building Ordinance from the Director of Public Works and shall comply with all considerations and other terms of the Green Building Ordinance requirements to the satisfaction of the Director of Public Works (see Sections 22.52.2130.C.5 and Section 22.52.2150 of the County Code).

5.16.6 Level of Significance after Mitigation

Potential impacts related to land use were determined to be less than significant. Therefore, no land use mitigation is necessary. The project involves the construction of a solar energy facility and a transmission line. The solar energy facility is allowed within the land use and zoning designations with discretionary review and approval. The proposed off-site

transmission line would be located within public road right of way and adjacent private land. There are no established communities that would be divided as a result of the Project. With compliance with the General Plan polices and applicable Green Building Ordinance requirements, the Project would be considered to be consistent and result in less than significant impacts.

5.16.7 References

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TABLE 5.16-1
CONSISTENCY WITH LAND USE POLICIES AND ORDINANCES

Policy	Relationship of Project to Policy
Southern California Association of Governments	
Regional Transportation Plan Goals	
RTP G1 – Maximize mobility and accessibility for all people and goods in the region.	Not Applicable – The Project is not a transportation improvement project and will not establish new transportation system.
RTP G2 – Ensure travel safety and reliability for all people and goods in the region.	Not Applicable – The Project is not a transportation improvement project and will not establish new transportation system.
RTP G3 – Preserve and ensure a sustainable regional transportation system.	Not Applicable – The Project is not a transportation improvement project and will not establish new transportation system.
RTP G4 – Maximize the productivity of our transportation system.	Not Applicable – The Project is not a transportation improvement project and will not establish new transportation system or affect existing transportation systems.
RTP G5 – Protect the environment, improve air quality and promote energy efficiency.	Consistent – The Project objective is to generate clean energy using solar renewable energy resources. The Project would generate 230 MW of electricity, but would consume substantially less fossil fuels and emit substantially less combustion and GHG emissions compared with conventional power generation facilities (i.e., natural gas-fired power plant). The Project is designed to protect and minimize impacts to biological resources (i.e., wildlife permeable fencing, avoidance of drainages, avoidance of Joshua tree recruitment area, etc.), and would require a minimal amount of human presence and maintenance efforts during operation.
RTP G6 – Encourage land use and growth patterns that compliment our transportation investments.	Consistent – The Project will not encourage sprawl as it maintains the site in a use consistent with agricultural uses, and would not result in growth-inducing effects.
RTP G7 – Maximize the security of our transportation system through improved system monitoring, rapid recovery planning, and coordination with other security agencies.	Not Applicable – The Project is not a transportation improvement project and will not establish new transportation system or affect existing transportation systems.
Compass Growth Visioning Goals	
GV P1.1 – Encourage transportation investments and land use decisions that are mutually supportive.	Not Applicable – The Project will not increase the density within the area as it is not a housing development.
GV P1.2 – Locate new housing near existing jobs and new jobs near existing housing.	Not Applicable – The Project is not proposing housing development.
GV P1.3 – Encourage transit–oriented development.	Not Applicable – The Project will not increase the density within the area as it is not a housing development.
GV P1.4 – Promote a variety of travel choices.	Not Applicable – The Project will not increase the density within the area as it is not a housing development.
GV P2.1 – Promote infill development and	Not Applicable – The Project is located in a rural agriculturally

TABLE 5.16-1 (CONTINUED)
CONSISTENCY WITH LAND USE POLICIES AND ORDINANCES

Policy	Relationship of Project to Policy
redevelopment to revitalize existing communities.	based community that would not necessitate infill development or have the need for revitalization of the existing community.
GV P2.2 – Promote developments, which provide a mix of uses.	Not Applicable – The Project is not proposing mixed uses.
GV P2.3 – Promote "people scaled," walkable communities.	Not Applicable – The Project is not proposing housing development.
GV P2.4 – Support the preservation of stable, single–family neighborhoods.	Not Applicable – The Project is not proposing housing development.
GV P3.1 – Provide, in each community, a variety of housing types to meet the housing needs of all income levels.	Not Applicable – The Project is not proposing housing development.
GV P3.2 – Support educational opportunities that promote balanced growth.	Not Applicable – The Project is not proposing housing development. The need for educational opportunities is not required.
GV P3.3 – Ensure environmental justice regardless of race, ethnicity or income class.	Not Applicable – The Project is not a development affecting environmental justice.
GV P3.4 – Support local and state fiscal policies that encourage balanced growth.	Not Applicable – There are no local or state fiscal policies requested of the Project that would encourage balanced growth. The Project is the development of a 230-MW PV solar facility. Without area wide policies and oversight it is unlikely any one project will establish a balance.
GV P3.5 – Encourage civic engagement.	Consistent – Public participation and comment is encouraged during the development of the Project. A scoping meeting was held on May 14, 2009 to gather public input. Additionally, circulation of this Draft EIR is intended to engage public response and participation as part of the Project decision-making process.
GV P4.1 – Preserve rural, agricultural, recreational, and environmentally sensitive areas.	Consistent – The current land use pattern in the Project area is vacant agricultural lands. Surrounding land uses include undeveloped and agricultural lands. The current land use for the Project site as set forth by the General Plan's Land Use designation is Non-Urban (N-1). The Project will develop on zoned agricultural lands (A-2). However, the A-2 agricultural zoning designation permits alternative land uses, such as the Project. The Project will operate with a low level of activity (minimal noise, air emissions, lighting, traffic, and human presence). Additionally, the Project is designed and would implement measures to minimize indirect impacts to environmentally sensitive adjacent SEAs.
GV P4.2 – Focus development in urban centers and existing cities.	Not Applicable – The Project is not proposing housing development.

TABLE 5.16-1 (CONTINUED)
CONSISTENCY WITH LAND USE POLICIES AND ORDINANCES

Policy	Relationship of Project to Policy
GV P4.3 – Develop strategies to accommodate growth that uses resources efficiently, eliminate pollution and significantly reduce waste.	Consistent – The Project would generate clean, renewable electricity using sunlight energy. The Project would help preserve petroleum resources, reduce greenhouse gas emissions, and would generate substantially less combustion emissions compared to conventional natural gas-fire power plants.
GV P4.4 – Utilize "green" development techniques.	Consistent – As required by the County of Los Angeles, the Project will implement applicable Green Building Ordinance guidelines.
Los Angeles County General Plan	
Conservation, Open Space and Recreation	
2. Support the conservation of energy and encourage the development and utilization of new energy sources including geothermal, thermal waste, solar, wind and ocean-related sources.	Consistent – The proposed Project is the development of a 230-MW photovoltaic solar power generation facility. Therefore, the proposed Project utilizes new energy sources.
3. Promote the use of solar energy to the extent possible.	Consistent – The proposed Project is the development of a 230-MW photovoltaic solar facility.
7. Preserve significant ecological areas by appropriate measures, including preservation, mitigation, and enhancement.	Consistent – The Project site and transmission line are not located within any designated SEA boundaries. As discussed in Section 5.7 (Biological Resources) and Section 5.16.2.3.6, the Project would not result in significant impacts to the adjacent JTWH SEA. The Project will generate minimal air emissions and noise during operations. Human activity will be light, most of the activity will occur in and around the relatively small area of the on-site operations and maintenance building. Only infrequent maintenance activities will be required at any one location and time within the solar field.
Antelope Valley Area Wide Plan	
Agricultural Lands	
28. Within designated "Agricultural Opportunity Areas," carefully evaluate extension of urban and suburban uses (outside the urban areas and the rural communities) for its impact on adjacent agricultural operations.	Not Applicable – The Project is not an urban or suburban use. The Project would generate power in a passive manner, and would result in minimal air emissions, traffic, and noise, and would not affect adjacent agricultural operations.
Resource Conservation	
40. Encourage efficient utilization of resources in the allocation of land to various uses, and incorporate energy conservation measures into the design and implementation of public and private projects.	Consistent – The Project's proposed use of photovoltaic solar panels, which absorb renewable solar energy resources in order to generate power, would thereby conserve fossil fuel use. The Project is also proposed on previously disturbed agricultural lands, and would require modest quantities of water compared with other traditional power generation technologies.

TABLE 5.16-1 (CONTINUED)
CONSISTENCY WITH LAND USE POLICIES AND ORDINANCES

Policy	Relationship of Project to Policy
Physical Appearances/Community Image	
65. Encourage the locating of new power distribution networks, communication lines, and other service network facilities underground in urban areas. Transmission lines should be located underground where feasible.	Consistent – The Project's proposed 230-kV transmission line is not a power distribution network, but instead is designed to transmit high-voltage (230 kV) electricity from a power generation source to the interconnection point to the electrical grid (i.e., SCE Whirlwind Substation). Power distribution networks are different than transmission line systems. Electrical distribution systems function to deliver electricity from distribution substations to consumers, and thus, are rated at lower voltages (120 volts [V] or below up to approximately 69 kV of electricity) (US DOE 2010). Transmission systems deliver electricity generated from power plants (typically over long ranges) at high voltages (US DOE 2010). Undergrounding the proposed 230-kV transmission line would conflict with the existing LADWP Aqueduct #2 pipeline location along the west side of 170th Street West, and would also conflict with Kern County's preference for overhead lines. Two aboveground crossing points would be required for the transmission line to cross the LADWP Aqueduct #2 along 170th Street West in Los Angeles County before the transmission line would become aboveground in Kern County. In addition, the on-site 34.5-kV transmission lines would need to be above ground where they cross 170th Street West where they cross LADWP Aqueduct #2 (east of the Project substation). As a result, locating the entire extent of the proposed transmission lines underground is not considered to be feasible.
69. Protect significant vegetation such as the Joshua Tree.	Consistent – The proposed Project would avoid all on-site Joshua trees (Joshua tree recruitment area) and minimize impacts to Joshua tree woodlands, would be buffered from adjacent resources, would cause only minimal operation impacts, and would preserve or restore portions of natural habitat on-site. Areas to be preserved with setback buffers on-site include the Joshua tree recruitment area, and Drainages A, B, and C.
Environmental Resource Management	
123. Preserve the Antelope Valley's SEAs in as viable and natural a condition as possible, recognizing the resource values at stake and the constraints imposed by competing priorities and objectives.	Consistent – The Project site and proposed transmission line are not located within a designated SEA boundary. As discussed in Section 5.16.3.2.6, several SEA designated areas are located north, south, east, and west of the Project boundary; however, potential indirect impacts during construction would be rendered less than significant through implementation of Mitigation Measure 5.6-2 (Develop and Implement Fugitive Dust Emission Control Plan), which would reduce the impact of fugitive dust on the adjacent SEA areas; implementation of Mitigation Measure 5.18-1 would reduce construction equipment noise; and construction work would be

TABLE 5.16-1 (CONTINUED)
CONSISTENCY WITH LAND USE POLICIES AND ORDINANCES

Policy	Relationship of Project to Policy
	temporary and transient, such that the effects of dust, noise, and human presence would occur over a short timeframe. During operation, the Project would generate minimal air emissions and noise. Human activity would be light, as most of the activity would occur in and around the relatively small area of the on-site O&M building., the facility would require a small number of permanent employees, and only infrequent maintenance activities would be required at any one time and location within the solar field.
129. Encourage clustering of structures for projects in SEAs to assure compatibility with the unique and rare resources present.	Not Applicable – Neither the Project site nor the proposed transmission line route is located within a designated SEA boundary.
Recreation	
166. Where a proposed discretionary project encompasses a mapped trail corridor, a trail dedication requirement will be a condition of approval.	Not Applicable – The Project is neither located within nor encompasses a mapped trail or hiking corridor.
Energy Consumption	
217. Promote use of alternative energy sources (including solar and wind) for heating and cooling.	Consistent – The proposed Project is the development of a 230-MW photovoltaic solar facility. Therefore, the proposed project utilizes new energy sources.
Non-Residential Uses In Non-Urban Areas	
a) Location (1) The proposed use should be located and designed so as not to conflict with established community land use and circulation patterns. (2) The necessary public services and infrastructure should be readily available. (3) The proposed use should be located and designed so as to provide an appropriate buffer between potentially disruptive, polluting or hazardous uses and other existing development. (4) The proposed use shall be located and designed so as to minimize the scenic, noise, and odor impacts on adjacent neighborhoods and other adjacent land uses. (5) The proposed use shall be located in areas deemed suitable from ecologic,	Consistent – The current land use pattern in the Project area is vacant agricultural lands. The proposed Project is consistent with surrounding agricultural land uses and will not affect existing circulation patterns. As analyzed in Sections 5.11 (Traffic and Access), 5.12 (Fire Protection Services), and 5.13 (Sheriff Services), adequate public services and infrastructure are readily available, and the Project would result in less than significant impacts to these resources. The proposed Project site will be surrounded by an 8-foot high chain link fence. The facility fencing provides a minimum buffer of 50 feet from property boundaries. The Project is located in an area of generally low population density and surrounding areas consist of agricultural and undeveloped land. No neighborhoods are located adjacent to the Project area. As analyzed in Sections 5.6 (Air Quality), 5.10 (Visual Qualities), and 5.18 (Noise), the Project would result in less than significant impacts following implementation of prescribed mitigation measures. The proposed Project is considered to be suitable with on-site and surrounding ecological resources (including the adjacent JTWH

TABLE 5.16-1 (CONTINUED)
CONSISTENCY WITH LAND USE POLICIES AND ORDINANCES

Policy	Relationship of Project to Policy
geologic and topographic standpoint.	SEA) (refer to Section 5.7) and geologic resources (refer to Section 5.2). The Project will generate minimal air emissions and noise during operations. Human activity will be light, most of the activity will occur in and around the relatively small area of the on-site operations and maintenance building.
b) Access (1) Access, egress and on-site parking should be provided in a manner which maximizes safety and convenience, and minimizes adverse impacts on surrounding land use patterns. (2) The design and location of the project should insure that the transport of toxic, explosive, or hazardous substances will avoid existing residential communities.	Consistent – The proposed Project will provide adequate on-site parking. Implementation of mitigation measures described in Section 5.11 (Traffic and Access) of this EIR will ensure that demands of the proposed Project will not overburden existing roadways. The proposed Project does not include the use of hazardous or special conditions that can be detrimental to the public health and safety (refer to Section 5.15, Environmental Safety).
c) Design (1) The proposed site should be appropriately landscaped such that the development blends into the surrounding landscape as much as possible. Appropriate landscaping should include, whenever practical, materials appropriate to desert environs. (2) The proposed site should be appropriately fenced, if necessary. (3) Consideration should be given to appropriate hours of operation. (4) Outdoor advertising should be designed in such a way as to minimize negative impacts on adjacent properties. (5) If located in a hillside area, the proposed site should be designed so as to minimize necessary grading and to take advantage of existing hillside contours. The design should also minimize the scenic and geologic impacts of the project, particularly erosion and land slippage.	Consistent – Landscaping, including vegetation screening along SR-138 (Mitigation Measure 5.10-4, Section 5.10, Visual Qualities) will be installed per the County of Los Angeles landscaping requirements. The proposed Project will be surrounded by an 8-foot-high chain link fence. The facility fencing provides a minimum buffer of 50 feet from property boundaries. Human activity will be light, most of the activity will occur in and around the relatively small area of the on-site operations and maintenance building. No outdoor advertising will be necessary as part of the proposed Project. The proposed Project is not located within a hillside area.
Significant Ecological Areas	
D(5). Each development proposed within a designated (or potential) SEA will be reviewed for compliance with the following	Applicability: The Project is not located within a designated SEA. The County of Los Angeles is undergoing a General Plan Update Program, and released a draft Significant Ecological Areas Policy

TABLE 5.16-1 (CONTINUED)
CONSISTENCY WITH LAND USE POLICIES AND ORDINANCES

Policy	Relationship of Project to Policy
design criteria:	Map in 2008. The general plan update is required to have a corresponding EIR. Based on the draft SEA areas, the proposed 230-kV transmission line (within the Los Angeles County public road ROW) may traverse approximately 0.25 mile of the draft JTWH SEA #11 (note: draft SEA #11, if approved, would be a modified version of the existing SEA #60). The Project's proposed 230-kV transmission line route would potentially result in placement of two (2) to three (3) poles within the future SEA #11 boundaries, as currently drafted.
a) The development is designed to be highly compatible with biotic resources present, including the setting aside of appropriate and sufficient undisturbed areas.	Consistent – The proposed transmission line poles (up to 3 within the draft SEA #11 boundaries) would be spaced approximately 700 feet apart, and each pole (including the pole foundation) would require a permanent footprint of an approximately 50 square feet. The substantial distance between pole and access locations would minimize disturbance, and all Joshua trees along the route would be avoided. Additionally, the transmission line design minimizes the potential for shock or electrocution of birds, and discourages nesting and perching on the poles. As a result, the proposed transmission line poles would comply with this criterion.
b) The development is designed to maintain waterbodies, watercourses, and their tributaries in a natural state;	Not Applicable – No waterbodies, watercourses, or their tributaries are located within the portion of SEA #11 that would be traversed by the transmission line.
c) The development is designed so that wildlife movement corridors (migratory paths) are left in a natural and undisturbed state;	Consistent – Due to the few number of pole locations (i.e., up to 3 poles) that would potentially be located within the draft future SEA #11 boundaries and the substantial spacing between poles (approximately 700 feet), the transmission line would allow ample undisturbed habitat between pole locations to allow wildlife movement. As a result, the proposed transmission line poles would comply with this criterion.
d) The development retains sufficient natural vegetative cover and/or open spaces to buffer critical resource areas from the proposed use.	Consistent – The proposed transmission line route would be located within the existing public road ROW in Los Angeles County, would result in minimal permanent disturbance that would be limited to the pole footprint (50 square feet) along with the pole access area from the public road ROW, and would be subject to a vegetation management program. As a result, the proposed transmission line poles would comply with this criterion in the event that the draft SEA boundaries are adopted.
e) Where necessary, fences or walls are provided to buffer important habitat areas from development;	Consistent – As a result of the low level of activity associated with the transmission line during operations, fences or walls would not be necessary to buffer the draft future SEA #11 area in the event that the draft SEA boundaries are adopted.

TABLE 5.16-1 (CONTINUED)
CONSISTENCY WITH LAND USE POLICIES AND ORDINANCES

Policy	Relationship of Project to Policy
f) Roads and utilities serving the proposed development are located and designed so as not to conflict with critical resources, habitat areas, or migratory paths; and	Consistent – The substantial distance between pole locations and the pole access areas would minimize disturbance, and all Joshua trees along the route would be avoided. As a result, the proposed transmission line poles would comply with this criterion in the event that the draft SEA boundaries are adopted.
g) Clustering of structures is utilized where appropriate to assure compatibility with the biotic resources present.	Consistent – The substantial distance between pole locations and the pole access areas would minimize disturbance.
County of Los Angeles Zoning Ordinance	
Section 22.56.040	
A. The requested use at the location will not: 1. Adversely affect the health, peace, comfort or welfare of persons residing or working in the surrounding area; or 2. Be materially detrimental to the use, enjoyment or valuation of property of other persons located in the vicinity of the site; or 3. Jeopardize, endanger or otherwise constitute a menace to the public health, safety or general welfare.	Consistent – The Project area is a rural area with low residential density and is largely dominated by open space and agricultural uses. The Project is associated with a low level of activity during operations, with minimal noise, emissions, lighting, and human presence.
B. That the proposed site is adequate in size and shape to accommodate the yards, walls, fences, parking and loading facilities, landscaping and other development features prescribed in Title 22, or as is otherwise required in order to integrate said use with the uses in the surrounding area.	Consistent – The Project will comply with all applicable development standards as prescribed by Title 22.
C. That the proposed site is adequately served: 1. By highways or streets of sufficient width, and improved as necessary to carry the kind and quantity of traffic such use would generate, and 2. By other public or private service facilities as are required.	Consistent – The Project is adequately served by the existing roadway systems, where the primary roadways consist of SR-138, 170th Street West, and 160th Street West. Access to the Project site would be from 170th Street West. Project implementation would not generate a substantial increase in traffic on these roadways.
Ordinances for Low Impact Developments, Drought-Tolerant Landscaping and Green Building	
Title 12 Chapter 12.84, Low Impact Development (LID) Ordinance	
1. Mimic undeveloped stormwater and urban runoff rates and volumes in any storm event up to and including the "50-year capital design	Consistent – The proposed Project drainage concept was prepared in accordance with the applicable standards detailed in the Green Building Ordinance guidelines (refer to Section 5.3, Flood Hazards).

TABLE 5.16-1 (CONTINUED)
CONSISTENCY WITH LAND USE POLICIES AND ORDINANCES

Policy	Relationship of Project to Policy
storm event," as defined by Public Works.	
2. Prevent pollutants of concern from leaving the development site in stormwater as the result of storms, up to and including a water quality design storm event.	Consistent – The proposed Project will implement applicable stormwater pollution prevention standards detailed in the Green Building Ordinance guidelines (refer to Section 5.3, Flood Hazards, and Section 5.5, Water Quality).
3. Minimize hydromodification impacts to natural drainage systems.	Consistent – The proposed Project will adhere to applicable standards detailed in the Green Building Ordinance guidelines (refer to Section 5.3, Flood Hazards).
Title 22 Chapter 22.52 Part 21, Drought–tolerant Landscaping Ordinance	
1. A minimum of 75 percent of such total landscaped area shall contain plants from the drought-tolerant plant list.	Consistent – The proposed Project will adhere to applicable landscaping standards detailed in the Drought-tolerant Landscaping ordinance guidelines (refer to Section 5.16.3.2.5).
2. A maximum of 25 percent of such total landscaped area shall consist of turf, however, in no event shall turf be planted in strips that are less than five feet wide, and in no event shall the total landscaped area contain more than five thousand square feet of turf.	Consistent – The proposed Project will adhere to applicable landscaping standards detailed in the Drought-tolerant Landscaping ordinance guidelines.
3. All turf in such total landscaped area shall be water-efficient. The green building technical manual shall contain a list of turf that meets this requirement.	Consistent – The proposed Project will adhere to applicable landscaping standards detailed in the Drought-tolerant Landscaping ordinance guidelines.
4. The plants in such total landscaped area shall be grouped in hydrozones in accordance with their respective water, cultural (soil, climate, sun, and light) and maintenance requirements.	Consistent – The proposed Project will adhere to applicable landscaping standards detailed in the Drought-tolerant Landscaping ordinance guidelines.
Title 22 Chapter 22.52 Part 20, Green Building Ordinance	
1. All projects shall be designed to consume at least fifteen (15) percent less energy than allowed under the 2005 Update to the California Energy Efficiency Standards, except projects exempt from energy compliance under these 2005 standards.	Consistent – In accordance with Section 22.52.2160 of the ordinance, the proposed O&M building office area (i.e., excluding the material storage and equipment warehouse portion) at a minimum, would be constructed in accordance with applicable County Green Building standards.
2. Outdoor Water Conservation: a) A smart irrigation controller shall be installed for any area of a lot that is landscaped or designated for future landscaping; and b) All landscaped areas shall meet the drought-tolerant requires set for in Part 21 of Chapter 22.52.	Consistent – The proposed Project will adhere to applicable green building standards detailed in the Green Building Ordinance guidelines.

TABLE 5.16-1 (CONTINUED)
CONSISTENCY WITH LAND USE POLICIES AND ORDINANCES

Policy	Relationship of Project to Policy
3. Indoor Water Conservation: All tank-type toilets installed in non-residential buildings with a gross floor area of at least 10,000 square feet shall be high-efficiency toilets.	Consistent – The proposed Project will adhere to applicable green building standards detailed in the Green Building Ordinance guidelines.
4. Resource Conservation: A minimum of 65 percent of non-hazardous construction and demolition debris by weight from non-residential buildings with a gross area of at least 10,000 square feet shall be recycled and/or salvaged for reuse.	Consistent – The proposed Project will adhere to applicable green building standards detailed in the Green Building Ordinance guidelines.
5. Tree Planting: For each lot containing non-residential buildings, a minimum of three 15-gallon trees shall be planted and maintained for every 10,000 square feet of developed area, at least sixty-five (65) percent of which shall be from the drought-tolerant plant list.	Consistent – The proposed Project will adhere to applicable green building provisions detailed in the Green Building ordinance guidelines. The Project is designed with an objective to conserve resources by producing electricity in a manner that consumes low quantities of fossil fuel and water, and thus, would be considered consistent with the intent of the Green Building Ordinance. In accordance with the ordinance, the Project is expected to obtain authorization to modify the tree planting requirement, since planting the quantity of trees set forth in the ordinance would not be feasible given the size of the Project facility area, and would increase the Project water demands. As a result, the Project would be consistent with the purpose and intent of the ordinance.
Kern County General Plan	
Land Use, Open Space, and Conservation Element	
Resource	
7. Areas designated for agricultural use, which include Class I and II and other enhanced agricultural soils with surface delivery water systems, should be protected from incompatible residential, commercial, and industrial subdivision and development activities.	Consistent – The proposed transmission line will be located within or adjacent to the public road ROW. In the latter case, the transmission line would traverse an area assigned with Map Code 8.1 (Intensive Agriculture) land use designation and Exclusive Agriculture (A) zoning district. Permitted uses under these designations include transmission line uses. The transmission line is considered a compatible use with agricultural uses.
8. Provide for the orderly expansion of new urban-scale infrastructure and development and the creation of new urban-scale centers in a manner that minimizes adverse effects on agriculture and natural resource uses.	Consistent – The proposed transmission line would be located within or adjacent to the public road ROW, and would be considered a compatible use with agricultural uses. The overhead transmission line design could provide transmission line co-location opportunities for other projects in Kern County, and would minimize the amount of permanent disturbance to agricultural areas (i.e., in comparison to an undergrounded transmission line).

TABLE 5.16-1 (CONTINUED)
CONSISTENCY WITH LAND USE POLICIES AND ORDINANCES

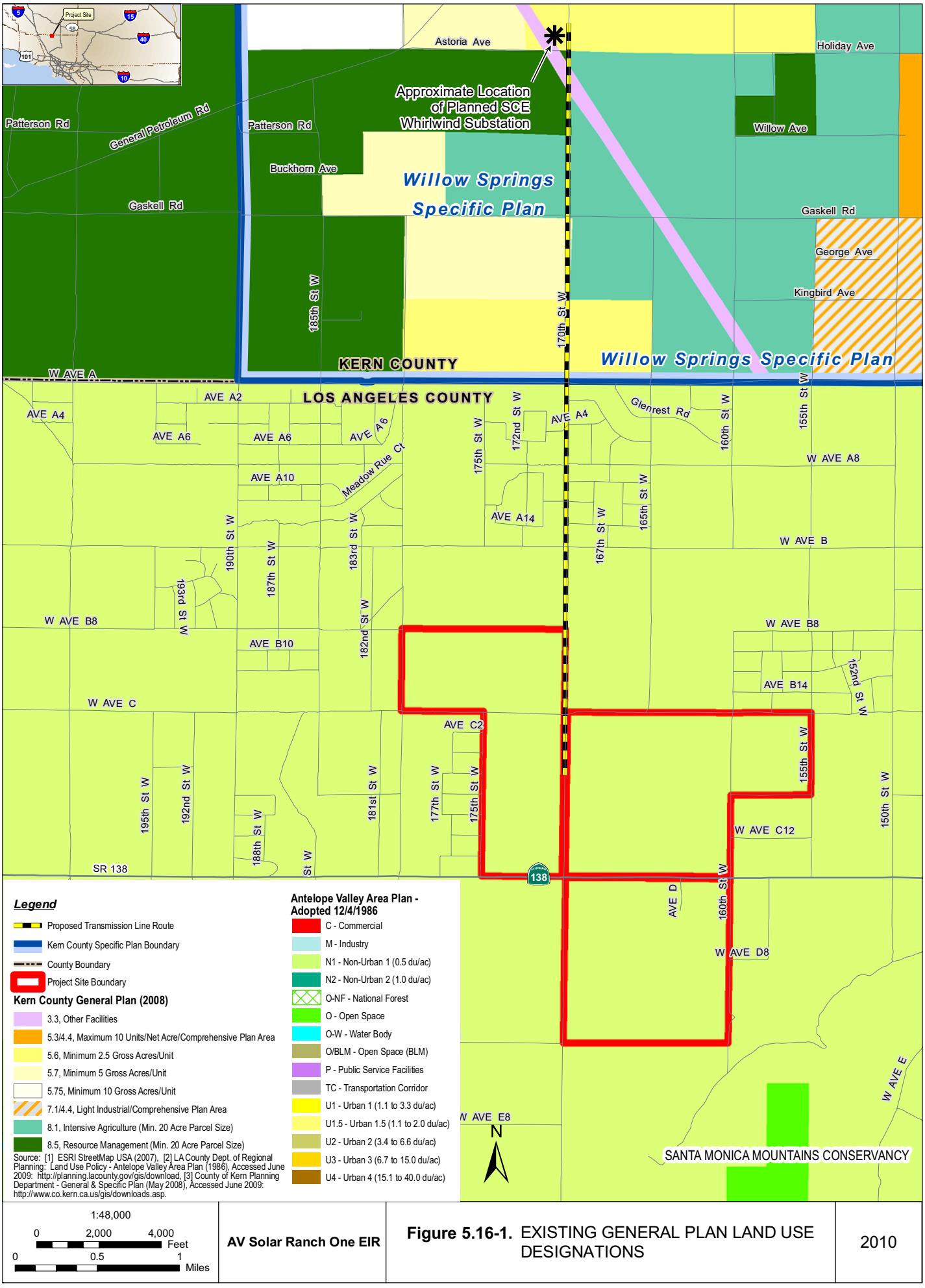
Policy	Relationship of Project to Policy
General Provisions: Air Quality	
20. The County shall include fugitive dust control measures as a requirement for discretionary projects and as required by the adopted rules and regulations of the San Joaquin Valley Unified Air Pollution Control District and the Kern County Air Pollution Control District on ministerial permits.	Consistent – The proposed transmission line will adhere to regulations and rules as required by the Kern County Air Pollution Control District.
General Provisions: Threatened and Endangered Species	
27. Threatened or endangered plant and wildlife species should be protected in accordance with State and federal laws.	Consistent – The proposed transmission line route would be located within or adjacent to the existing road ROW. As analyzed in Section 5.7, Biological Resources, no threatened or endangered species were observed along the proposed transmission line route. Additionally, the Project shall implement mitigation measures identified in Section 5.7 such that construction and operation of the proposed transmission line would ensure that threatened or endangered plant and wildlife species, if present, are protected in accordance with State and federal laws.
Energy Element	
7. The processing of all discretionary energy project proposals shall comply with California Environmental Quality Act (CEQA) Guidelines directing that the environmental effects of a project must be taken into account as part of project consideration.	Consistent – The Project, as analyzed in this EIR, will adhere to guidelines as detailed by CEQA.
9. The County should develop and implement measures which result in long-term compensation for wildlife habitat, which is unavoidably damaged by energy exploration and development activities.	Consistent – The proposed transmission line is not considered an energy exploration use. The transmission line route would be located within, or on private lands adjacent to, the existing road ROW. As analyzed in Section 5.7, Biological Resources, impacts to Joshua trees from the off-site 230-kV transmission line will be minimal as previously discussed. Installation and maintenance of transmission poles will avoid impacts to Joshua trees.
10. The County should require acoustical analysis for energy project proposals that might impact sensitive and highly-sensitive uses in accordance with the Noise Element of the General Plan.	Consistent – The proposed transmission line will not generate significant noise, therefore it will not impact sensitive receptors. No highly sensitive uses are located within the Project area.
Solar Energy Development	
3. The County should permit solar energy development in the desert and valley	Consistent – As an accessory facility to the proposed solar facility located in Los Angeles County, the proposed transmission line is

TABLE 5.16-1 (CONTINUED)
CONSISTENCY WITH LAND USE POLICIES AND ORDINANCES

Policy	Relationship of Project to Policy
planning regions that does not pose significant environmental or public health and safety hazards.	consistent.
Transmission Lines	
2. The County shall review all proposed transmission lines and their alignments for conformity with the Land Use, Conservation, and Open Space Element of this General Plan.	Consistent – The proposed transmission line will require approval from Kern County in the form of a licensing/franchise agreement. The proposed project will be assessed for consistency with the County's land use, conservation and open space element. As evaluated in this table, the proposed transmission line is found to be consistent with the element.
3. In reviewing proposals for new transmission lines and/or capacity, the County should assert a preference for upgrade of existing lines and use of existing corridors where feasible.	Consistent – There are currently no existing high voltage transmission lines in the Project vicinity that would satisfy the Project interconnection requirements. The proposed transmission line will connect to the planned SCE Whirlwind Substation located northwest of the intersection of Holiday Avenue/Astoria Avenue and 170th Street West.
4. The County should work with other agencies in establishing routes for proposed transmission lines.	Consistent – The Project proponent is currently coordinating the proposed transmission route requirements with the County.
6. The County should encourage new transmission lines to be sited/configured to avoid or minimize collision and electrocution hazards to raptors.	Consistent – The proposed transmission line has been configured to minimize impacts to raptors.
Willow Springs Specific Plan	
Public Facilities	
2. In evaluating a development application, Kern County will consider both its physical and fiscal impact on the local school district and other public facilities. If it is found that the district or facilities involved will, as a result, require additional facilities or incur costs requiring additional local revenues, the development project will be required as a condition of approval to contribute funds to the district for the costs attributable to the project.	Not Applicable – The proposed transmission line will not generate or require a demand for resources or facilities.
4. New development will be required to pay its proportional share of the local costs of infrastructure improvements required to service such development.	Not Applicable – The project is not proposing housing or other development that would result in a significant demand on public facilities. Thus, no new infrastructure would be needed.

TABLE 5.16-1 (CONTINUED)
CONSISTENCY WITH LAND USE POLICIES AND ORDINANCES

Policy	Relationship of Project to Policy
Resource	
3. To ensure compliance with applicable State and federal laws and to protect the biological resources present in the Specific Plan area.	Consistent – The proposed transmission line will adhere to applicable federal and state regulations and rules.
21. Whether desert tortoises occur on site or not, garbage shall be hauled to a facility where it is immediately buried and not left above ground where ravens can congregate. If garbage service is not available, County road maintenance or other utility services shall be made contingent upon parcel owners removing visible trash on their property. The objective of these measures is to minimize the potential for increased raven predation of tortoises in the region subsequent to development.	Consistent – The Project would manage housekeeping and garbage properly in accordance with this measure.



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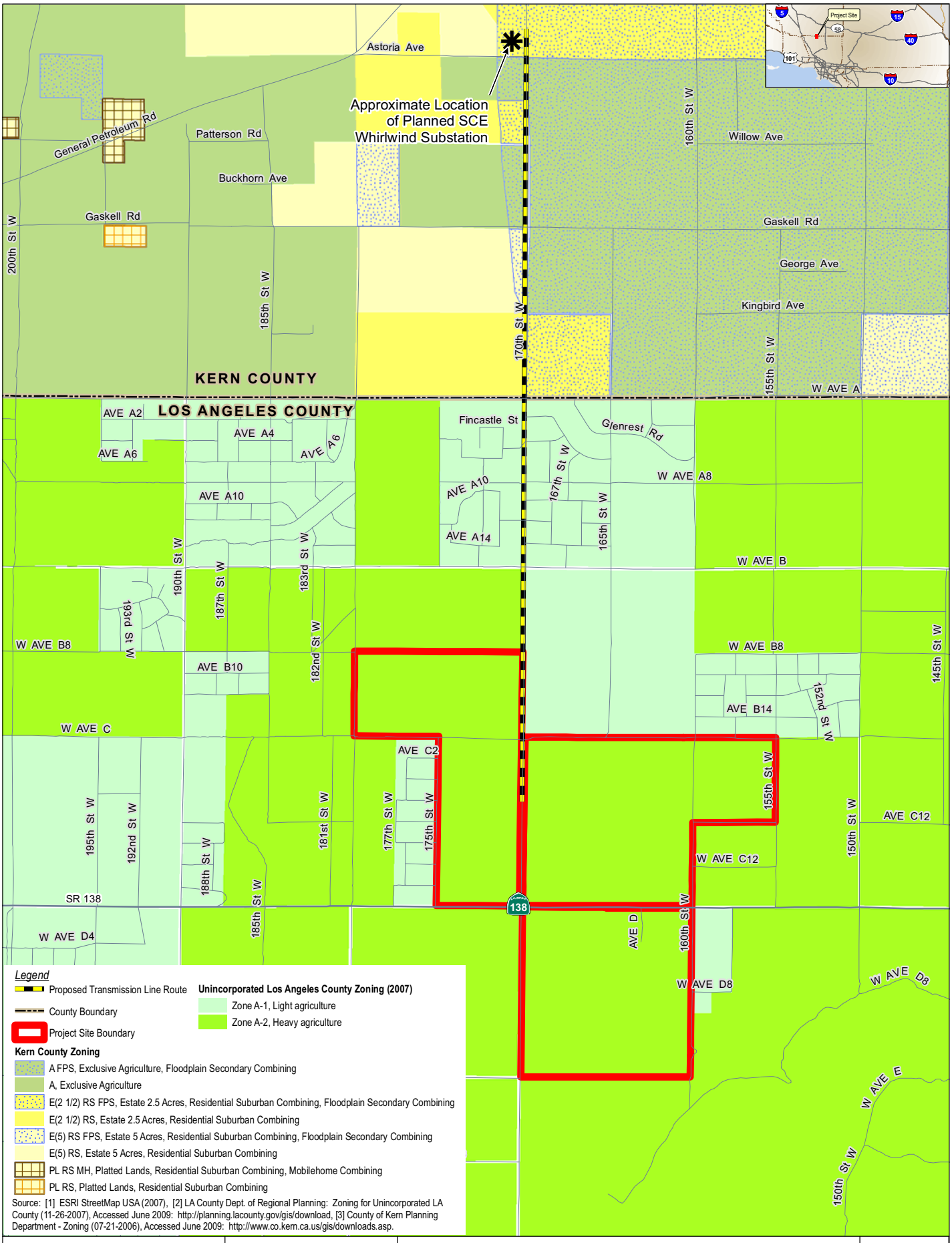
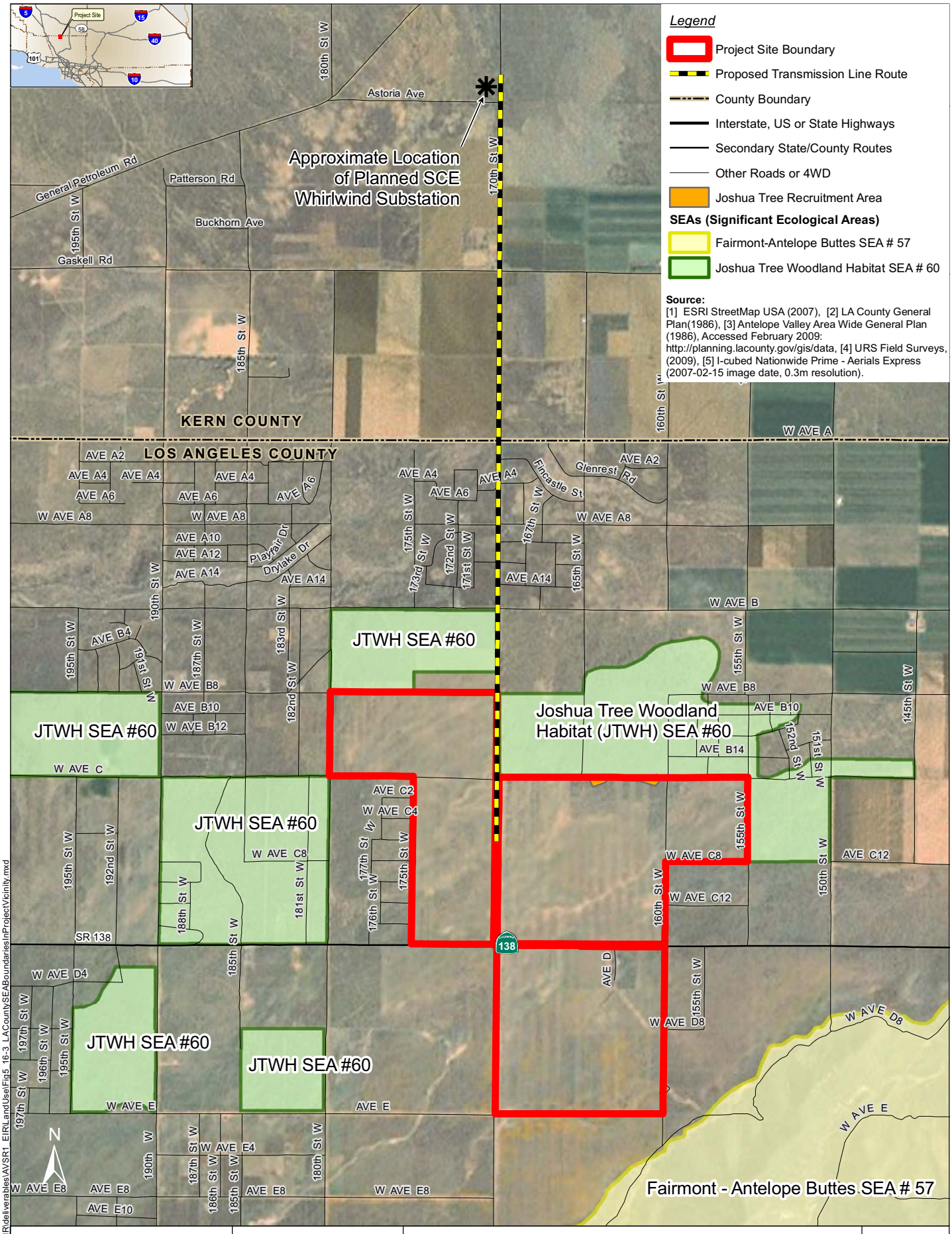
AV Solar Ranch One EIR

Figure 5.16-1. EXISTING GENERAL PLAN LAND USE DESIGNATIONS

2010



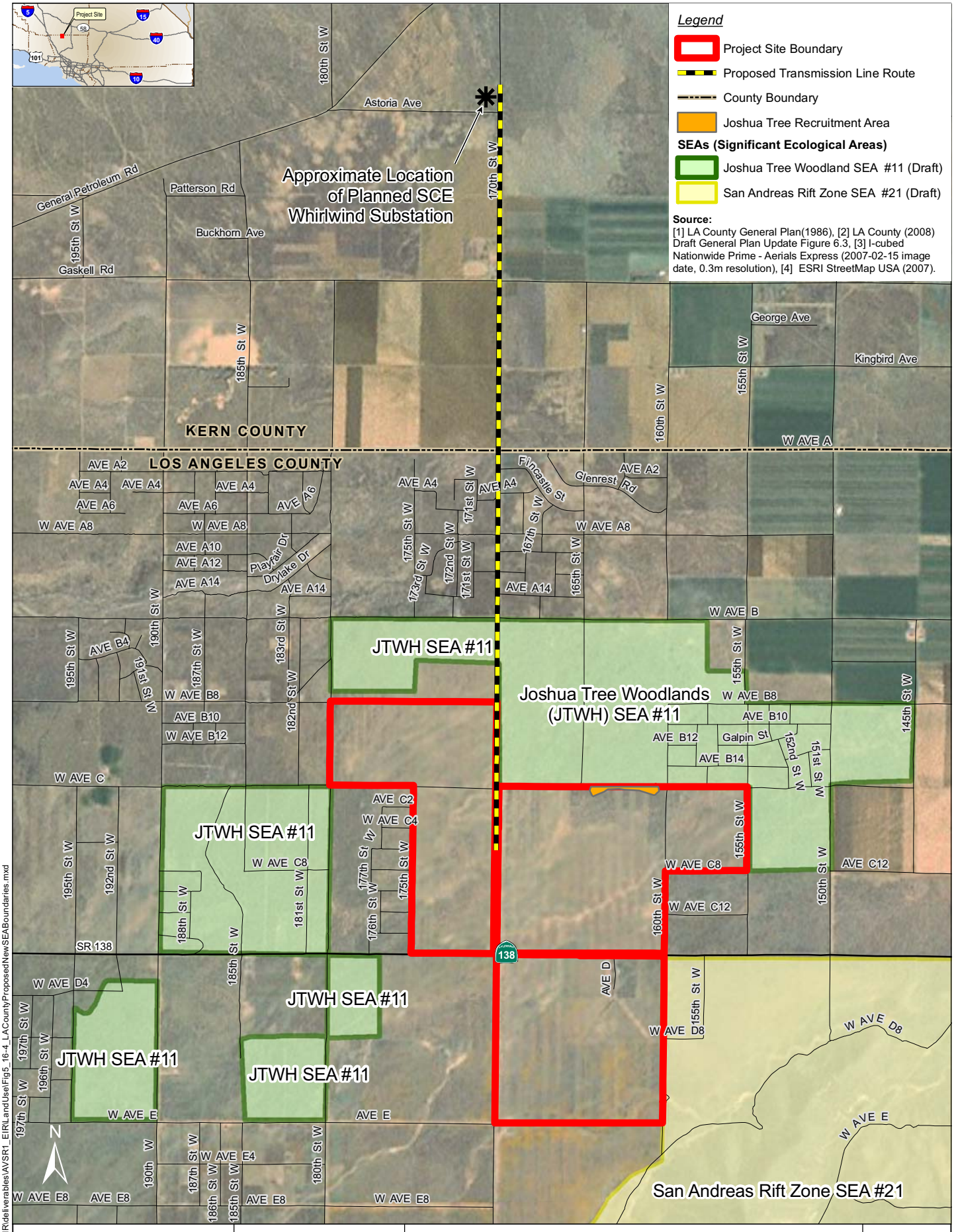
AV Solar Ranch One EIR	**Figure 5.16-2.** EXISTING ZONING	2010



AV Solar Ranch One EIR

Figure 5.16-3. LOS ANGELES COUNTY SEA BOUNDARIES IN PROJECT VICINITY

2010



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	AV Solar Ranch One EIR	**Figure 5.16-4.** LOS ANGELES COUNTY PROPOSED NEW SEA BOUNDARIES IN THE PROJECT VICINITY
		2010

5.15 ENVIRONMENTAL SAFETY

This section describes the regulatory framework, environmental setting, and significance criteria, and analyzes the potential environmental safety and hazardous materials impacts associated with the proposed Project. The potential hazards are described, potential Project-related impacts are assessed, and mitigation measures are proposed to reduce potentially significant impacts.

5.15.1 Regulatory Setting

The management of hazardous materials, hazardous waste, and public safety is subject to numerous laws and regulations at all levels of government. Regulations applicable to the proposed Project are designed to regulate hazardous materials and hazardous wastes, as well as to manage sites contaminated by hazardous waste. These regulations are designed to limit the risk of upset during the use, transport, handling, storage, and disposal of hazardous materials. Summaries of federal and state laws and regulations related to hazards and hazardous materials management are presented in this section.

5.15.1.1 Regulatory Definitions

- **Hazardous Material:** Any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. Hazardous materials include, but are not limited to, hazardous substances, hazardous waste, and any material which a handler or the administering regulatory agency has a reasonable basis for believing would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment (California Health and Safety Code, Section 25501 [o]). A number of properties may cause a substance to be considered hazardous, including toxicity, ignitibility, corrosivity, or reactivity.
- **Hazardous Waste:** A waste or combination of waste which, because of its quantity, concentration, or physical, chemical, or infection characteristics, may cause or significantly contribute to an increase in mortality or an increase in serious irreversible or incapacitation-reversible illness; or pose a substantial present or potential hazard to human health or the environment, due to factors including, but not limited to, carcinogenicity, acute toxicity, chronic toxicity, bioaccumulative properties, or persistence in the environment, when improperly treated, stored, transported, disposed of, or otherwise managed (California Health and Safety Code, Section 25141). California waste identification and classification regulations are found in Title 22 of the California Code of Regulations.

5.15.1.2 Federal

5.15.1.2.1 U.S. Environmental Protection Agency. The U.S. EPA (USEPA) is the principal regulatory agency responsible for the safe use and handling of hazardous materials.

5.15.1.2.2 Superfund Amendments and Reauthorization Act Public Law 99-499 (100 Stats. 1613). The Superfund Amendments and Reauthorization Act (SARA) amended the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, 42 U.S.C. § 9601 *et seq*.) on October 17, 1986. SARA reflected the USEPA's experience in administering the complex Superfund program during its first 6 years and made several important changes and additions to the program. SARA also required USEPA to revise the Hazard Ranking System to ensure that it accurately assessed the relative degree of risk to human health and the environment posed by uncontrolled hazardous waste sites that may be placed on the National Priorities List.

SARA specifically addresses the management of hazardous materials by requiring public disclosure of information relating to the types and quantities of hazardous materials used at various types of facilities. SARA Title III (42 U.S.C. § 11001 *et seq.*) is referred to as the Emergency Planning and Community Right to Know Act. The Act addresses community emergency planning, emergency release notification, and hazardous materials chemical inventory reporting.

5.15.1.2.3 Resource Conservation and Recovery Act 42 U.S.C. § 6901 *et seq*. The Resource Conservation and Recovery Act (RCRA) gave the USEPA the authority to control hazardous waste from the "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous waste.

The 1986 amendments to the RCRA enabled the USEPA to address environmental problems that could result from underground tanks that store petroleum and other hazardous substances. The RCRA focuses on active and future facilities; however, once a hazardous material is released to the environment, it is deemed a waste as soon as the material impacted is disturbed or moved. Therefore, contaminated soil can be regulated under the RCRA. The California DTSC implements the RCRA in California, and regulations regarding hazardous waste are contained in the California Code of Regulations, Title 26. Most waste streams at oil and gas sites qualify for the "RCRA petroleum exclusion," described in Section 261.4 of Title 40 of the Code of Federal Regulations. Thus, most petroleum soil contamination resulting from typical "exploration, development, or production of crude oil, natural gas or geothermal energy" is excluded from RCRA classification. A clarification of the RCRA petroleum exclusion is provided in the March 22, 1993 issue of the Federal Register (Volume 58, p. 15.284).

5.15.1.2.4 U.S. Department of Transportation. The U.S. Department of Transportation has the regulatory responsibility for the safe transportation of hazardous materials. The Federal Hazardous Materials Transportation Law, 49 U.S.C. Section 5101, is the basic statute regulating hazardous materials transportation in the United States. The purpose of the law is to "protect against the risks to life, property, and the environment that are inherent in the transportation of hazardous material in intrastate, interstate, and foreign commerce."

5.15.1.2.5 Asbestos Regulations and Requirements. Federal OSHA regulates asbestos as a worker health and safety issue through the Asbestos Standards for the Construction Industry (ASCI). USEPA regulations concerning the identification, handling, management, and abatement of asbestos-containing materials (ACM) is found in the Asbestos Hazard Emergency Response Act (AHERA) and the National Emission Standards for Hazardous Air Pollutants (NESHAP).

Asbestos Standard for the Construction Industry. The ASCI (29 CFR 1926.1101; 8 CCR 1529), administered by OHSA and Cal-OSHA, regulates asbestos exposure in the workplace for abatement workers and contractors. The ASCI:

- Specifies how workers and the public are to be protected during removal;
- Provides medical surveillance requirements for workers;
- Provided detailed requirements for how asbestos is to be removed; and
- Defines training requirements for abatement personnel.

Building materials containing at least 1 percent asbestos are considered ACMs and should be managed according to OSHA requirements.

AHERA Act 40 CFR 763, as implemented by EPA, primarily pertains to the assessment and management of K-12 nonprofit schools. However, many of the procedures, training requirements, and certifications defined by AHERA have become the industry standard for all facilities.

National Emission Standard for Hazardous Air Pollutants 40 CFR 61. The NESHAP is an asbestos standard that protects the general public from asbestos exposure due to demolition or demolition activities. The NESHAP requires surveys for suspect materials, notification of intent to renovate or demolish or remove regulated ACMs before demolition or demolition activities, and proper management of asbestos-containing waste.

5.15.1.2.6 Lead-based Paint Regulations and Requirements. Federal OSHA and Cal-OSHA regulate worker exposure during construction activities that impact lead-based paint

(LBP). The Interim Final Rule found in 29 CRF Part 1926.62 covers construction work where employees may be exposed to lead during activities such as demolition and removal.

5.15.1.3 State

5.15.1.3.1 California Office of Emergency Services. The California Office of Emergency Services coordinates the emergency response to an accidental release of acutely/extremely hazardous materials.

5.15.1.3.2 California Health and Safety Code Section 25500. The California Health and Safety Code (CHSC), Section 25500, requires companies that handle hazardous materials in sufficient quantities to develop a Hazardous Materials Business Plan (HMBP). The HMBP includes basic information on the location, type, quantity, and health risks of hazardous materials handled, stored, used, or disposed of that could be accidentally released into the environment. It also includes a plan for training new personnel and for annual training of all personnel in safety procedures to follow in the event of a release of hazardous materials. Additionally, the HMBP includes an Emergency Response Plan and identifies the business representative able to assist emergency personnel in the event of a release.

5.15.1.3.3 Department of Toxic Substances Control. The objective of the Department of Toxic Substances Control (DTSC) is to protect human health and the environment from exposure to hazardous materials and waste. The DTSC has the authority to respond to and enforce the cleanup of hazardous substance releases, pursuant to the Hazardous Substance Account Act (HSA Act), Chapter 6.8, Division 20, of the Health and Safety Code, and the cleanup of hazardous waste under the Hazardous Waste Control Law, Chapter 6.6 (commencing with Section 25100).

The HSA Act contains a petroleum exclusion by which the term "hazardous substance" cannot apply to "petroleum, including crude oil or any fraction thereof which is not otherwise specifically listed or designated as a hazardous substance" (Health and Safety Code Section 25317). As a result, the DTSC can enforce the cleanup if the presence of hazardous substance results from: 1) the addition of hazardous substances to crude oil and the addition is not part of regular crude oil processing, or 2) use and wear of crude oil (HSA Act, Hazardous Waste Control Law).

Under Government Code Section 65962.5.(a), the DTSC is required to compile and update as appropriate, but at least annually, and submit to the Secretary for Environmental Protection, a list of all of the following:

1) All hazardous waste facilities subject to corrective action, pursuant to Section 25187.5 of the Health and Safety Code.

2) All land designated as hazardous waste property or border zone property, pursuant to Article 11 (commencing with Section 25220) of Chapter 6.5 of Division 20 of the Health and Safety Code.

Transportation of hazardous waste must be done by transporter registered with the DTSC. Unless specifically exempted, hazardous waste transporters must comply with the California Highway Patrol Regulations; the California State Fire Marshal Regulations; and the United States Department of Transportation Regulations. In addition, hazardous waste transporters must comply with Division 20, Chapter 6.5, Article 6 and 13 of the California Health and Safety Code and the Title 22, Division 4.5, Chapter 13 of the California Code of Regulations which are administered by DTSC.

5.15.1.3.4 California Division of Oil, Gas, and Geothermal Resources. The California Division of Oil, Gas, and Geothermal Resources (DOGGR) is mandated by Section 3106 of the Public Resources Code (PRC) to supervise the drilling, operation, maintenance, and abandonment of oil wells for the purpose of preventing: 1) damage to life, health, property, and natural resources; 2) damage to underground and surface waters suitable for irrigation or domestic use; 3) loss of oil, gas, or reservoir energy; and 4) damage to oil and gas deposits by infiltrating water and other causes.

DOGGR is also charged with implementing Section 3208.1 of the PRC. The Construction-Site Plan Review Program was developed to assist local permitting agencies in identifying and reviewing the status of oil or gas wells located near or beneath structures. Before issuing building or grading permits, local agencies review and implement DOGGR preconstruction well requirements. Interaction between local permitting agencies and DOGGR helps resolve use issues and allows for responsible development in oil and gas fields.

5.15.1.3.5 California Department of Pesticide Regulation. The California Department of Pesticide Regulation (DPR) is the principal agency responsible for the regulation of pesticide sales and use in the state. DPR oversees licensing and certification of dealers, pest control advisors, and pest control businesses and applicators. DPR also assumes overall responsibility for pesticide incident investigations, administers pesticide residue monitoring programs, and coordinates pesticide use reporting. Section 11501 of the California Food and Agricultural Code requires pesticide applications to be confined to their target and to avoid contamination of non-target properties; violations can result in either civil penalties or a revocation of a pesticide use permit.

5.15.1.3.6 California Department of Health Services. The California Department of Health Services (DHS) has an advisory role with respect to pesticide use and exposure. It conducts studies and investigates cases of pesticide exposure, conducts toxicological evaluations and risk assessments, and provides educational programs for physicians on

diagnosing and treating pesticide poisonings. On a local level, if the USEPA determines that a pesticide has the potential to cause human injury or environmental damage, its purchase and use is restricted and a permit from the local agricultural commissioner is required. Furthermore, restricted pesticides are only available for retail sale to and for use by Certified Applicators or persons under their direct supervision, and only for those uses covered by the Certified Applicator's certification.

5.15.1.3.7 Lahontan Regional Water Quality Control Board. The Porter-Cologne Water Quality Act (California Water Code, Section 13000 *et seq.*) established the authority of the State Water Resources Control Board (SWRCB) and provided the Lahontan RWQCB (LRWQCB) with the primary responsibility of protection of water quality in the proposed Project area. The LRWQCB protects ground and surface water quality in the Project region by the development and enforcement of water quality objectives and implementation of the Water Quality Control Plan for the Lahontan Basin-South Region. The LRWQCB governs requirements, issues waste discharge permits, takes enforcement action against violators, and monitors water quality.

Landfill design, construction, and maintenance are regulated by LRWQCB, in accordance with CCR Titles 14 and 27, to ensure the environmental safety of the facility both during its operation and upon its closure (Cal. Water Code §§ 13172, 13226, 13227).

5.15.1.3.8 California Integrated Waste Management Board. The California Integrated Waste Management Board (CIWMB) is a part of the California Environmental Protection Agency (Cal/EPA). The CIWMB is responsible for managing California's solid-waste streams and protects public health and the environment by regulating waste management facilities.

5.15.1.4 Local

5.15.1.4.1 Certified Unified Program Agency. The Certified Unified Program Agency (CUPA) is an agency certified by the DTSC to conduct the Unified Program, which consists of hazardous waste generator and on-site treatment programs; aboveground and underground storage tank (UST) programs; Hazardous Materials Management, Hazardous Materials Business Plans (HMBPs), and Inventory Statements; and the Risk Management and Prevention Program. In the Project area, the CUPA is the Los Angeles County Fire Department Health Hazardous Materials Division (HHMD).

The Los Angeles County Fire Department HHMD Site Mitigation Unit (SMU) oversees corrective action at contaminated sites in Los Angeles County. As discussed above in Section 5.15.1.2.3, the RWQCB also has regulatory jurisdiction over sites that potentially threaten groundwater or surface waters of the State.

5.15.2 Environmental Setting

5.15.2.1 Project Site

The proposed Project site for the AV Solar Ranch One facility is located in the Antelope Valley area in unincorporated Los Angeles County, approximately 15 miles northwest of downtown Lancaster. The property consists of approximately 2,100 acres of undeveloped land with the exception of a small ranch and internal roadways.

5.15.2.1.1 Phase I Environmental Site Assessment. Phase I Environmental Site Assessments (Phase I ESAs) have been conducted for the proposed Project site (URS 2008a and b). The purpose of the Phase I ESAs was to gather information concerning the property and surrounding areas to identify conditions indicative of releases or threatened releases of hazardous substances, pollutants, contaminants, petroleum or petroleum products, and controlled substances to identify and evaluate Recognized Environmental Conditions (RECs) affecting the property.

The Phase I ESAs were accomplished by, and limited to, a site reconnaissance, a site vicinity perimeter survey, and review of agency databases and other reasonably ascertainable records regarding past and current land use for indications of the manufacture, generation, use, storage and/or disposal of hazardous substances at the property.

Historical data indicate that the majority of the proposed Project property has been undeveloped or used for agricultural production since the 1950s. The proposed Project site contains a small ranch with multiple structures including:

- Two occupied residences:
  - The first occupied residence is a brick house, reportedly built in the 1930s with lath and plaster construction and wood flooring.
  - The second occupied residence was reportedly built in stages in the 1960s and 1970s, with wood ceilings and recently installed laminate floors.
- One unoccupied mobile home, which was reportedly brought onto the property approximately 21 years ago, and is thought to be constructed in the 1970s
- Storage sheds
- Four cylindrical corrugated steel storage silos
- Two water wells with pumps and unlined reservoirs for storage (one domestic well in use at the time of the reconnaissance, plumbed to route water directly into underground

piping); second irrigation well located approximately 300 feet southwest of occupied residences (reportedly not operational since 1995)

- Propane, herbicide and pesticide tanks
- 55-gallon drums
- Various abandoned motor vehicles and farm equipment
- A reportedly abandoned oil well, abandoned as a dry hole (the well was not observed during the site reconnaissance)

The Phase I ESAs identified the following RECs on the proposed Project:

- Approximately 200 square feet of near-surface soil hydrocarbon contamination near four aboveground fuel storage tanks was observed within the 27-acre ranch area during a previous Phase I ESA conducted in 2007 (Michael Brandman Associates 2007).
- Based on the use of hazardous materials and potential waste disposal on the ranch area of the property, there is a potential for impacts to the subsurface of the property at the ranch property.
- The existence of an on-site abandoned oil well was documented on the California Division of Oil, Gas, and Geothermal Resources (DOGGR) database. This well is reportedly located along 160th Street West between West Avenue C and West Avenue C12. The exact location of the oil well could not be verified.

5.15.2.1.2 DOGGR File Review. Based on a review of available documentation from DOGGR, the on-site abandoned oil well is reported to be API #03705928, also referred to as Singer No. 1. The well was reported to be located in the Singer Oil Lease and was developed by Solar Oil Co. Inc. The well was reportedly drilled in October, 1950 to 2093 feet. No oil was encountered in this hole at any horizon. The hole was reportedly abandoned to the property owner in November 1950 for use as a water well.

5.15.2.2 Off-site Transmission Line Route

The proposed off-site 230-kV transmission line route is approximately 3.5 miles long and would be located within, and on private lands adjacent to, the 170th Street West public road right of way to interconnect to SCE's planned Whirlwind Substation in Kern County. The northern portion of the proposed transmission line route (approximately 2 miles) is located in southern Kern County and consists of agricultural land within the Willow Springs Specific Plan area.

5.15.3 Project Impacts

5.15.3.1 Methodology and Significance Criteria

According to Los Angeles County significance criteria, the proposed Project would result in a significant impact if it would:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials including pressurized tanks or storage of hazardous waste.
- Potentially adversely affect any residential units, schools, or hospitals located within 500 feet of the site.
- Have had previous uses that indicate residual soil toxicity of the site or is located within 2 miles downstream of a know groundwater contamination source within the same watershed.
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school.
- Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5, and, as a result, create a significant hazard to the public or environment.
- Be located within an airport land use plan or where such a plan has not been adopted, within 2 miles of a public airport or public use airport, or within the vicinity of a private airstrip, and result in safety hazard for people residing or working in the project area.
- Impair implementation of or physically interfere with an adopted Emergency Response Plan or emergency evacuation plan.

5.15.3.2 Impact Analysis

5.15.3.2.1 Criteria 1: Are any hazardous materials, including pressurized tanks and hazardous wastes, used, transported, produced, handled, or stored on-site?

The proposed Project would have a significant impact if it creates a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. Potential significant impacts include a hazard to workers, the public, or the environment through the transport, use, or disposal of hazardous materials.

Potential Impact 5.15-1: Impacts from hazardous materials use/storage during construction and operation activities.

Neither facility site nor off-site transmission line construction activities would require extensive or ongoing use of hazardous materials. The hazardous materials used for Project construction would be typical of most construction projects of this type. As summarized in Table 4.4-3, Hazardous Materials Used During Construction, hazardous materials for construction would include gasoline, diesel fuel, oils, lubricants, solvents, detergents, degreasers, paints, ethylene glycol, and welding materials/supplies (e.g., pressurized gasses). All hazardous materials would be stored on-site in containers that are specifically designed for the characteristics of the materials to be stored. As summarized in Table 4.4-4, Wastes Generated During Construction, hazardous wastes generated during construction would include small amounts of waste oil, solvents, adhesives, paint and batteries (estimated at approximately 2.63 cubic yards of waste per week and 3 spent lead batteries per year). Accidental release of small quantities of hazardous materials/wastes could occur during Project construction activities. The accidental release of hazardous materials/wastes during construction activities would be promptly contained and abated in accordance with applicable regulatory requirements, and therefore, would not be expected to result in a significant impact.

During the Project operations phase, limited quantities of hazardous materials would be stored on-site. These materials include fuel, lubricants, solvents, janitorial supplies, paint, degreasers, herbicides, pesticides, and FM200 fire suppressant. In addition, approximately 84,000 gallons of transformer insulating oil (mineral oil) would be contained within electrical transformers and switches at the facility. A summary of hazardous materials to be used during operation, are included in Table 4.4-5, Hazardous Materials Used During Operations. Hazardous materials would be stored primarily in the Operations and Maintenance building. Flammable materials such as paints and solvents would be stored in flammable material storage cabinets with secondary containment. Mineral insulation oil would be stored in transformers and electrical switches located on the site. Hazardous wastes expected to be generated during Project operations are included in Table 4.4-6, and include waste oil, hydraulic fluids, grease oily rags and spent batteries.

The proposed Project would develop and implement a hazardous materials and hazardous waste management program for both construction and operation phases**.** The program would include the following, as required by applicable regulations:

- **Hazardous Materials and Hazardous Waste Handling:** The construction contractor would prepare a Project-specific hazardous materials management and hazardous waste management program prior to initiation of construction. The program would outline proper hazardous materials use, storage, and disposal requirements, as well as hazardous

waste management procedures. The program would identify types of hazardous materials to be used during Project construction and operation, and the types of wastes that would be generated. All Project personnel would be provided with Project-specific training. This program would be developed to ensure that all hazardous materials and wastes would be handled in a safe and environmentally sound manner. Hazardous wastes would be handled and disposed of according to applicable rules and regulations. Employees and contractor personnel handling wastes would receive hazardous materials training and be trained in hazardous waste procedures, spill contingencies, waste minimization procedures and treatment, storage, and disposal facility (TSDF) training in accordance with OSHA Hazard Communication Standard and 22 CCR. Prior to construction and operation the Project would prepare or update and submit a HMBP, in accordance with Chapter 6.95 of the CHSD, and Title 22 CCR, as required by the CUPA.

- **Construction Stormwater Pollution Prevention Plan:** The construction contractor would prepare a Project-specific construction-related SWPPP for review and approval by appropriate regulatory agencies, and implemented prior to the start of demolition and construction activities. The construction-related SWPPP would utilize BMPs to address the storage and handling of hazardous materials and sediment runoff during demolition and construction activities.

- **Transport of Hazardous Materials/Waste:** Hazardous materials transported by truck would include fuel (diesel fuel and gasoline) and oil and lubricants for equipment. Transportation of hazardous waste may include hazardous building materials from Project demolition and small amounts of construction waste such as waste oils, solvents or cleaners. The construction contractor would prepare written procedures for the transport of hazardous materials/waste in accordance with California Vehicle Code, CHP Regulations (California Code of Regulations [CCR] Title 13); United States Department of Transportation (DOT) Regulations, Title 49, Code of Federal Regulations (49 Code of Federal Regulations); and U.S. Environmental Protection Agency (USEPA) Regulations, Title 40 Code of Federal Regulation, and CCR 22 regulations prior to construction activities. These procedures would include packaging, manifesting, and USEPA Identification Number requirements.

- **Fueling and Maintenance of Construction and Operation Equipment:** The construction contractor would prepare written procedures for fueling and maintenance of construction equipment prior to construction activities. Vehicles and equipment would be refueled off-site or on-site by tanker trucks. If on-site fueling is conducted, refueling procedures would include the use of drop cloths made of plastic, drip pans, and trays to be placed under refilling areas to ensure that chemicals do not come into contact with the ground. Refueling stations shall be located in designated areas where absorbent pads and trays are available. Drip pans or other collection devices would be placed under the

equipment at night to capture drips or spills. Equipment would be inspected daily for potential leakage or failures.

- **Emergency Release Response Procedures:** The construction contractor would prepare an Emergency Response Plan detailing responses to releases of hazardous materials prior to construction activities. It would prescribe hazardous materials handling procedures for reducing the potential for a spill during construction, and would include an emergency response program to ensure quick and safe cleanup of accidental spills. All hazardous materials spills or threatened release, including petroleum products such as gasoline, diesel, and hydraulic fluid, would be immediately reported. All construction and operations personnel would be aware of state and federal emergency response reporting guidelines.

Implementation of the above hazardous materials and hazardous waste management program would be expected to reduce the potential impacts associated with the handling and use of hazardous materials during construction and operation to less than significant levels.

5.15.3.2.2 Criteria 2: Are any residential units, schools, or hospitals located within 500 feet and potentially adversely affected?

The proposed Project would have a significant impact if it adversely affects residential units, schools, or hospitals within 500 feet of the site.

No residences, schools or hospitals are known to be located within 500 feet of the Project site. The southern portion of the Project site contains farm-related structures including two residences belonging to the previous property owner. The farmhouses would be removed as part of the proposed Project. Thus, no impacts to on-site or nearby residences would occur.

No schools or hospitals are known to be located within 500 feet of the proposed off-site transmission line route. Several residences are located along 170th Street West within 500 feet of the proposed transmission line route. Due to the small amounts of hazardous materials associated with transmission line construction (and the implementation of the hazardous materials and hazardous waste management plan), potential impacts associated with handling and use of minimal hazardous materials would be expected to be less than significant.

5.15.3.2.3 Criteria 3: Have there been previous uses that indicate residual soil toxicity of the site or is located within 2 miles downstream of a known groundwater contamination source within the same watershed?

The proposed Project would have a significant impact if previous uses indicated residual soil toxicity of the site or is located within 2 miles downstream of a known groundwater contamination source within the same watershed.

Based on a review of the SWRCB Geo Tracker website, the facility site and the off-site transmission line are not reported to be located within 2 miles downstream of a known groundwater contamination source. Therefore, impacts related to upstream groundwater contamination would not be expected to occur.

However, Phase I ESAs performed on the facility site indicate the potential exists for contaminated soils due to previous uses as described below under Potential Impact 5.15-2. Contaminated soil along the off-site transmission route is not expected, but could potentially be encountered (see Potential Impact 5.15-2).

Potential Impact 5.15-2: Impacts from potential soil contamination.

As identified in the Phase I ESAs performed on the Project site (URS 2008a, URS 2008b, MBA 2007, and SGD 1990), soils in the area of the facility site have the potential to be impacted by hazardous materials associated with past agricultural uses, and oil development activities. Contaminants of potential concern include total petroleum hydrocarbons (TPH), volatile organic compounds (VOCs), benzene, toluene, ethylbenzene, xylenes (BTEX); semi-volatile organic compounds (SVOCs), including polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs); pesticides; and metals, including arsenic, lead, mercury, and hexavalent chromium.

The Phase I ESAs indicate that the primary area of potential contamination is located in the vicinity of the Larsen Ranch residence and farm structures. According to the SGD (1990) Phase I ESA, soil testing in the surrounding historical agricultural use areas that was conducted as part of a previous investigation in 1989 indicated that there were no residuals or pesticides of other chemicals in concentrations that would require further action under federal or state guidelines. However, the 1989 report and details of the test data were not available.

Construction activities or maintenance activities during operations could uncover impacted soils and expose construction workers to potential health hazards. Exposure to impacted soil at levels above established regulatory thresholds could present long-term health hazards to Project workers directly exposed. The implementation of Mitigation Measure 5.15-1 (involving Phase II Environmental Site Assessment and remediation, as applicable) would reduce the impact from potentially contaminated soil to levels below significance.

The proposed off-site transmission route traverses rural areas, and would be located within, and on private lands adjacent to, the 170th Street West public road right of way. Soils in the area of the transmission line are not likely contaminated, but have some potential to have been impacted with hazardous materials, including pesticides. However, ground disturbance during construction would be minimal and would only occur at laydown areas, pole locations and conductor stringing locations; no ground disturbance is expected to be required during transmission line operations, and thus impacts are not expected to occur. The implementation

of Mitigation Measure 5.15-2 (Soil Management Plan) would reduce impacts from potential contaminated soil to levels below significance.

Potential Impact 5.15-3: Impacts from abandoned oil well.

Due to the less stringent regulations pertaining to drilling activities in the past, it is possible that the abandoned oil well reportedly located on the proposed facility site was not abandoned in accordance with current safety standards The possibility exists for oil, methane, or toxic gases (aromatic hydrocarbons or hydrogen sulfide) to migrate up through this well and to release to the environment. Release of methane gas has the potential to result in fire or explosion. Exposure to toxic gases could pose a health hazard to the public and/or on-site workers during construction or operations. However, the implementation of Mitigation Measure 5.15-3 would reduce the impact from the facility site abandoned oil well to levels below significance. No abandoned oil wells were located on the off-site transmission line route, and thus the associated impacts would not occur.

Potential Impact 5.15-4: Impacts from demolition/building materials containing hazardous materials/waste.

The proposed Project construction activities include removal of farm-related structures located on the facility site; no structures requiring removal are located along the off-site transmission line route. Once these existing structures are removed as part of Project construction, no further demolition would be required during the operations phase.

On January 8, 2010, URS performed a pre-demolition survey for ACM, LBP for 10 buildings on the Project site that included the former Larsen Ranch residences and farm structures. Friable ACM was found in the sheet vinyl flooring of the residences, and non-friable ACM was found in roofing materials. LBP was found in both interior and exterior paints (URS 2010).

These materials could potentially be released from some of the building materials, during demolition activities and could pose a potentially significant impact to Project demolition workers. Exposure to hazardous materials (ACM or LBP) could cause various short-term or long-term adverse health effects.

Asbestos: Asbestos is made up of microscopic bundles of fibers that may become airborne when disturbed. These fibers get into the air and can be inhaled into the lungs, where they can cause significant health problems. Researchers still have not determined a “safe level” of exposure but we know the greater and the longer the exposure, the greater the risk of contracting asbestos related disease. Some of the long-term health effects include asbestosis, mesothelioma and lung cancer:

Lead: Lead enters the body primarily by inhalation. In the respiratory tract, most lead compounds are absorbed rapidly and stored in nerve tissue so that poisoning can develop from long-term exposure to low doses. Poisoning can also develop slowly from ingestion via lead-contaminated food, drink or tobacco products. Prevention of lead poisoning is almost entirely a matter of good personal hygiene and housekeeping. The symptoms of lead poisoning can be different with different individuals. A low level of lead in the blood can cause flu-like symptoms, weakness and numbness in the arms and legs, poor circulation, forgetfulness, or anemia (low blood count). Acute lead poisoning usually manifests as gastroenteritis. Lead accumulates in the body; chronic lead poisoning is manifested by anemia, constipation, and abdominal pain. It can also cause reproductive problems. Higher levels of lead in the blood can lead to kidney damage, problems with the brain such as seizures and coma, and even death.

The proposed Project would comply with all regulations pertaining the removal of these materials through implementation of Mitigation Measure 5.14-4 which requires procedures for the assessment and removal of ACM and LBP, and the development and implementation of procedures for the handling and transport of hazardous materials/waste as part of the hazardous materials and hazardous waste management program.

5.15.3.2.4 Criteria 4: Would the project create a significant hazard to the public or the environment involving the accidental release of hazardous materials to the environment?

The proposed Project would have a significant impact if it creates a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials to the environment.

The construction and operations phases of the proposed Project would store and use hazardous materials and generate small quantities of hazardous waste.

The types of hazardous construction materials and wastes will be typical of most projects of this type. Materials used may include gasoline, diesel fuel, oils, lubricants, solvents, detergents, degreasers, paints, ethylene glycol, and welding materials/supplies. Wastes generated may include waste paint, spent construction solvents, waste cleaners, waste oil, oily rags, waste batteries, and spent welding materials. For further discussion regarding types and estimated quantities refer to Section 4.4.6.9 and Table 4.4-3 for materials, and Section 4.4.6.10 and Table 4.4-4 for wastes.

Hazardous materials and wastes will be used, generated or stored on-site for operations. Materials used may include oils, lubricants, paints, solvents, degreasers and other cleaners, FM200 fire suppressant, and transformer dielectric fluid (mineral oil). Wastes generated may include empty containers, spent batteries, oil sorbent and spent oil filters, oily rags, and used

hydraulic fluid, oils and grease. For further discussion regarding types and estimated quantities refer to Section 4.4.7.3 and Table 4.4-5 for materials, and Section 4.4.7.4 and Table 4.4-6 for wastes.

Additionally, the Project would develop and implement a hazardous materials and hazardous waste management program (for both construction and operations) that would include: 1) hazardous material/waste handling procedures; 2) stormwater pollution prevention measures; 3) hazardous materials/waste transport protocols; 4) fueling and maintenance procedures; and 5) emergency response procedures (refer to Section 5.15.3.2.1, Potential Impact 5.15-1).

Therefore, construction and operation of the proposed Project would not be expected to create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. Impacts related to potential accidental releases of hazardous materials are expected to be less than significant.

5.15.3.2.5 Criteria 5: Would the project emit hazardous emissions or handle hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

The proposed Project would have a significant impact if it emits emissions or handles hazardous materials, substances, or waste within 0.25 mile of a school.

The nearest school is over 7 miles from the Project facility site and off-site transmission line. Thus, neither construction nor operations of the proposed Project would emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school.

5.15.3.2.6 Criteria 6: Would the project be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or environment?

The proposed Project would have a significant impact if it is located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, a significant hazard to the public or environment would be created.

Based on the agency database review conducted for the proposed Project during the Phase I ESA in 2008 (see Section 5.15.2.1 for additional information), the proposed Project site is not included on hazardous materials site lists. In addition, according to the SWRCB GeoTracker® database and the Department of Toxic Substances Control (DTSC) Envirostor database, hazardous materials sites were not indentified along the off-site transmission line

route. Based on these data sources, the Project site and off-site transmission line are not on a known list of hazardous materials sites, and no significant impact or hazard to the public or environment would be expected to occur.

5.15.3.2.7 Criteria 7: Would the project result in a safety hazard for people in a project area located within an airport land use plan, within two miles of a public or public use airport, or within the vicinity of a private airstrip?

The proposed Project would have a significant impact if it is located within an Airport Land Use Plan or where such a plan has not been adopted, within 2 miles of a public airport, public use airport or private airstrip and would result in a safety hazard for people residing or working in the Project area.

The facility site is not located within an airport land use plan area or in the vicinity of a public airport or a private airstrip, and the off-site transmission line route is not located within an airport land use plan area. However, several privately owned airports near Rosamond (Skyotee Ranch and Pontius Airport) are located more than 3 miles east of the proposed off-site transmission line route. Due to the distance of these of facilities from the Project, and the comparatively low height of the tallest Project structure (125-foot-tall transmission line pole), Project construction and operations-related airport safety hazards are not expected to occur.

5.15.3.2.8 Criteria 8: Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Construction. The proposed Project would have a significant impact if it impairs implementation or interferes with an adopted Emergency Response and Evacuation Plan.

Emergency response and evacuation procedures for the proposed Project are coordinated by the Los Angeles County Sheriff's Department (LACSD), and the Los Angeles County Fire Department (LACFD) for the facility site, and by LACSD, LACFD, Kern County Sheriff's Department (KCSD), and the Kern County Fire Department (KCFD) for the off-site transmission line.

Emergency access to and in the vicinity of the Project site could potentially be affected during construction activities for both the facility site and the off-site transmission line (refer to Section 5.11, Traffic and Access). Facility site construction would require overhead 34.5-kV transmission line crossings of SR-138 and 170th Street West. Off-site transmission line construction may need to encroach on the roadway shoulder and/or require temporary closure of one traffic lane of 170th Street West. Additionally, there are multiple County road crossings by the off-site transmission line along 170th Street West.

During construction, the LACFD and KCFD would require that adequate vehicular access be provided and maintained. As described in Section 5.11, Mitigation Measure 5.11-1 requires preparation of Traffic Control Plans that would include: 1) location and usage of appropriate advance warning signs with adequate distances between signs based on local speed limits; 2) proper merging taper and/or shifting lane schematics; and 3) adequate work area and buffer zone designation as well as proper location and conduct of flagmen.

Traffic Control Plans would provide for the required access by emergency vehicles. Thus, the proposed Project is not expected to impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan, and impacts to these plans during construction would be less than significant.

Operation. The proposed Project would have a significant impact if it impairs implementation or interferes with an adopted Emergency Response and Evacuation Plan.

Emergency access to and in the vicinity of the Project area could potentially be affected during the operations phase of the Project (e.g., in the event of a fire). The Project operations staff would work with the sheriff and fire departments of both Los Angeles and Kern counties to ensure emergency procedures were coordinated during such an event. The HMBP for the Project would include an Emergency Response Plan that would be approved by the LACFD. Additionally, an Emergency Action Plan and a Fire Prevention Plan would be prepared for the Project as required by Cal-OSHA. Thus, the proposed Project would have established plans and procedures for responding to emergency situations and would not be expected to impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan. The impacts to emergency response plans or emergency evacuation plans during operations would be less than significant.

5.15.3.2.9 Electric and Magnetic Fields. Information on electric and magnetic field (EMF) strength and distance from the proposed off-site 230-kV transmission line, including radio and television interference and audible noise, is presented in Section 4.4.3.2 (Off-site Electrical Transmission Line) of the EIR.

This section summarizes pertinent details regarding EMF for the proposed 230-kV transmission line, since it includes approximately 3.5 miles which are off-site in the public road right-of-way of 170th Street West or adjacent private property, and several residences (refer to Figure 3-1) are located near the route. The 34.5-kV collection lines located on the facility site would not potentially expose any residences to EMF. As discussed in Section 4.4.3.2 of the Project Description, the calculated EMF levels for the proposed 34.5-kV lines would be substantially lower than the calculated fields for the off-site transmission line. EMF levels for both the transmission line and the distribution lines were at 1 meter above ground level using methods developed by the Electrical Power Research Institute (EPRI 1987).

Calculated electric and magnetic fields for the proposed 230-kV transmission line design are shown on Figures 4.4-7 and 4.4-8, respectively. Maximum electric field (60 hertz [Hz]) strengths are calculated to be approximately 2.7 kilovolts/meter (kV/m) under the transmission line, decreasing to about 0.1 kV/m within 50 feet (laterally) of the transmission line centerline (TriAxis 2009). Maximum magnetic field (60 Hz) strengths would be approximately 79 milligaus (mG) under the transmission line, decreasing to about 10 mG within 100 feet (laterally) of the transmission line centerline.

The proposed 230-kV transmission line would meet the requirements of the California Public Utilities Commission (CPUC), General Order (GO) No. 95, Rules for Overhead Electric Line Construction. This design code addresses shock hazards to the public by providing guidelines on minimum clearances to be maintained for practical safeguarding of persons during the installation, operation, or maintenance of overhead transmission lines and their associated equipment. Compliance with the requirements of CPUC GO 95 would limit potential Project-related electric shock hazards to acceptable levels.

There remains a lack of consensus in the scientific community regarding possible health effects resulting from EMF exposure at the levels expected from electric power facilities. There are no federal or State standards linking human exposures to EMF from transmission lines or substation facilities in California. Additionally, Los Angeles and Kern counties do not have established EMF standards for overhead transmission lines. Because there is no agreement among scientists that exposure to EMF creates any potential health risk, and because CEQA does not define or adopt any standards to address the potential health risk impacts of possible exposure to EMF, no impact significance determinations based on numerical standards are presented in the Draft EIR for EMF-related issues.

The Applicant has committed to managing the electric and magnetic field strengths associated with the proposed transmission line(s) by constructing the transmission facilities in accordance with the requirements of CPUC GO 95. In addition, EMF strengths would be managed in accordance with GO 52 (Rules for Construction and Operation of Power and Communication Lines for the Prevention or Mitigation of Inductive Interference), and GO 131-D (Rules for Planning and Construction of Facilities for the Generation of Electricity and Certain Electric Transmission Facilities), as applicable. Compliance with these requirements would limit potential EMF levels from Project facilities to levels that are consistent with CPUC policies which consider protection of public health, among other factors.

5.15.3.2.10 Indirect Impacts. No indirect impacts were identified with respect to environmental safety.

5.15.4 Cumulative Impacts

The context for the analysis of cumulative impacts from environmental safety is limited to the immediately surrounding area. Hazardous materials and contamination issues are largely site specific and generally would not combine with impacts from other projects to result in cumulative impacts.

Based on land uses in the surrounding area (primarily agricultural and open space) and the limited amount and type of hazardous materials to be used as part of the proposed Project, no significant incremental cumulative impacts associated with environmental safety would be expected to occur as a result of Project implementation. Regulations implemented by the DTSC, LACFD, KCFD, and the RWQCB would require similar measures being applied to other potential developments with environmental safety issues in the Project region. Therefore, the proposed Project would not be expected to result in significant cumulative impacts related to the transport, use, or disposal of hazardous materials.

The construction and operation of the proposed off-site transmission line would not be expected to result in any significant cumulative impacts relative to environmental safety issues.

5.15.5 Mitigation Measures

To mitigate potential environmental safety impacts associated with the proposed Project, implementation of the following mitigation measures are proposed.

Mitigation Measure (MM) 5.15-1: Additional assessment, and possibly remediation, of potentially contaminated soils on the Project site. Prior to the issuance of a grading permit, the Applicant shall obtain a site closure letter from the Los Angeles County Fire Department, Health Hazardous Materials Division. The Applicant shall conduct additional site assessment or remediation activities as required by and to the satisfaction of the Voluntary Oversight Program of the CUPA (Los Angeles County Fire Department, Health Hazardous Materials Division).

Additional assessment and/or remediation may include the following:

1) Preparation of applicable Phase II Environmental Site Assessment Work Plans that describe the proposed approach and methods to be used in characterizing shallow soils. The Work Plans shall include the proposed sampling locations, sample collection procedures, analytical methods, quality control measures, and a site-specific health and safety plan. The Phase II ESA(s) shall be submitted to the CUPA for regulatory review and approval.
2) Implementation of the Phase II ESA Work Plan(s) with CUPA oversight.

As necessary, Site Remediation Action Plans shall be developed. Upon CUPA concurrence with the recommendations presented the Phase II ESA(s), remedial action plans shall be prepared for submittal to the CUPA. The remedial action plans shall include the following.

1) Remediation goals and cleanup criteria.
2) Evaluation of corrective action alternatives that compares the effectiveness, feasibility, and cost benefit of each alternative. The remedial action plans shall take into account existing and proposed uses of the Project area.
3) Identification of the preferred alternative with consideration of protection of resources within the Project area.
4) A detailed description of the access points and haul-out routes for remedial activities; remediation methods and procedures; mitigation of dust; minimization or avoidance of disturbance to sensitive ecosystems; and verification soil sampling and analysis. Included in the discussion shall be information on disposal sites, transport and disposal methods, as well as recordkeeping methods for documenting remediation, regulatory compliance, and health and safety programs for on-site workers.

MM 5.15-2: A Soil Management Plan for Transmission Line Construction. Prior to issuance of a grading permit, a soil management plan shall be submitted to the CUPA for review and approval. The plan shall include practices that are consistent with the California Title 8, Occupational Safety and Health Administration (Cal-OSHA) regulations, as well as CUPA remediation standards that are protective of the planned use. Appropriately trained construction personnel shall be present during site preparation, grading, and related earthwork activities (e.g., augering) to monitor soil conditions encountered. In order to confirm the absence or presence of hazardous substances associated with former land use, a sampling strategy may be implemented. The sampling strategy shall include procedures regarding logging/sampling and laboratory analyses. The Soil Management Plan shall outline guidelines for the following:

- Identifying impacted soil
- Assessing impacted soil
- Soil excavation
- Impacted soil storage
- Verification sampling
- Impacted soil characterization and disposal

MM 5.15-3: The historic oil well that requires abandonment or re-abandonment shall be abandoned to current standards. Prior to issuance of a grading permit, an investigation

into the location of the historic oil well, reportedly located on the proposed Project site shall be conducted. If the well is determined to be located on the Project site, the well shall be inspected. If the well was not abandoned properly, as determined by the California Division of Oil, Gas, and Geothermal Resources (DOGGR), the well shall be re-abandoned to the satisfaction of DOGGR. The Project development plans shall comply with the required setbacks from oil and gas wells as determined by DOGGR and the County of Los Angeles.

MM 5.15-4: Demolition Hazardous Building Materials Assessment and Management Plan. Prior to the commencement of any demolition activity on the Project site, the demolition contractor shall prepare a written Demolition Hazardous Building Materials Assessment and Management Program for review and approval by the CUPA, and/or other appropriate regulatory agency. The Demolition Hazardous Building Materials Management Program shall include an assessment for lead-based paint (LBP) and asbestos-containing material (ACM) as identified in the URS pre-demolition survey report (URS 2010), and the following plans shall be prepared:

- **Lead-based Paint Abatement and Management Plan.** A LBP Abatement Plan shall be prepared and implemented by a qualified contractor. Elements of the plan shall include the following:
  - Containment of all work areas to prohibit off-site migration of paint chip debris.
  - Removal or encapsulation of all peeling and stratified LBP on building surfaces and on non-building surfaces to the degree necessary to properly complete demolition activities per the recommendations of the survey. The demolition contractor shall properly contain and dispose of intact LBP on all equipment to be cut and/or removed during demolition.
  - Providing on-site air monitoring during all abatement activities and perimeter monitoring to ensure no contamination of work of adjacent areas.
  - Cleanup and/or HEPA vacuum paint chips.
  - Collection, segregation, and profiling waste for disposal determination.
  - Post-demolition testing of soil to assure that soil at the site is not contaminated by LBP.
  - Providing for appropriate disposal of all waste.
- **Asbestos-containing Materials Abatement and Management Plan.** Prior to demolition work that shall disturb identified ACMs, an ACM Abatement and Management Plan shall be prepared. Asbestos abatement shall be conducted during demolition activities, consistent with OSHA and air quality regulations. The Management plan shall include detailed information regarding ACM classification, ACM hazard assessment (the

possibility of fiber release from ACM is based on the materials condition, such as friability), ACM inventory information, training and qualification for workers, demolition handling procedures, waste management and disposal procedures, and emergency response procedures (in case of a release of friable materials) licensed asbestos abatement removal contractor shall remove the ACMs under the oversight of a California Certified Asbestos Consultant. All identified ACMs shall be removed and appropriately disposed of by a state-certified asbestos contractor. The proposed Project shall include notification of demolition activities to the Antelope Valley Air Quality Management District.

5.15.6 Level of Significance after Mitigation

Implementation of Mitigation Measures 5.15-1 through 5.15-4 would be expected to reduce potential Project-related impacts associated with the release of hazardous materials to less than significant levels.

5.15.7 References

Electrical Power Research Institute (EPRI). 1987. Transmission Line Reference Book, 345-kV and Above, 2nd Edition (EPRI EL-2500). Chapter 8.

Michael Brandman Associates (MBA). 2007. Phase I Environmental Site Assessment, Larsen Ranch, Los Angeles County, California. June 28.

Staal, Gardner & Dunne, Inc (SGD). 1990. Preliminary Site Assessment, California Springs, Los Angeles County, California. Prepared for Impact Sciences, Inc. March.

TriAxis. 2009. Electric and Magnetic Calculations provided by TriAxis Engineering Co. (as per: *Electric Power Research Institute Transmission Line Reference Book, 345-kV and Above, 2nd Edition [EPRI EL-2500], Chapter 8, 1987. Bonneville Power Association "Corona and Field Effects" Computer Program [Version 3.0, Public Domain Software, undated]*).

URS. 2010. Pre-Demolition Survey Report, Former Larsen Ranch Buildings, AV Solar Ranch One Project. February.

2008a. Phase I Site Assessment AV, Solar Ranch 1 Foroughi Property. December 10.

2008b. Phase I Site Assessment, Larsen Ranch Site. July 18.

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5.14 UTILITY SERVICES

This section describes the utility services that would be affected by the proposed AV Solar Ranch One Project (Project). The following discussion addresses the regulatory setting and existing utility services in the Project region, identifies and analyzes potential Project impacts, and recommends mitigation measures, where applicable, to reduce or avoid adverse impacts anticipated from Project construction and operation.

5.14.1 Regulatory Setting

5.14.1.1 Federal

No federal laws, orders, regulations, or standards were identified related to utility services for the proposed Project.

5.14.1.2 State

5.14.1.2.1 California Government Code Section 4216 – Underground Utilities. Section 4216 requires that an excavator must contact a regional notification center at least two days prior to excavation of any subsurface installations. The notification center in turn, would notify the utilities that may have buried lines within 1,000 feet of the excavation, such that safety and avoidance measures may be taken during excavation activities. Representatives of the utilities are required to mark the specific location of their facilities within the work area prior to the start of excavation.

The proposed Project would comply with notification and excavation requirements under Government Code Section 4216.

5.14.1.2.2 California Public Resources Code Section 40000 *et seq* – Integrated Waste Management Act of 1989 (AB 939). AB 939 was passed in response to increased solid waste generation and decreased landfill capacity. It is administered by the California Integrated Waste Management Board (CIWMB), and part of its mandate was a waste diversion goal of 25 percent by the year 1995 and 50 percent by the year 2000 for source counties and cities.

5.14.1.2.3 California Solid Waste Reuse and Recycling Access Act of 1991. The Solid Waste Reuse and Recycling (SWRR) Act requires all new developments to include adequate, accessible, and convenient areas for collecting and loading recyclable and green waste materials. This Act was passed to assist local jurisdictions to meet the diversion goals set in AB 939.

5.14.1.3 Local

5.14.1.3.1 Los Angeles County General Plan (1993). No goals, policies, or objectives directly applicable to utility services were identified in the Los Angeles County General Plan.

5.14.1.3.2 Antelope Valley Areawide General Plan (1986).

Water Supply and Distribution Policy 101. Develop and use groundwater sources to their safe yield limits.

5.14.1.3.3 Los Angeles County Code.

Title 12 Chapter 12.84: Low Impact Development Standards. Chapter 12.84 establishes low impact development (LID) standards for developments constructed after January 1, 2009. LID encourages site sustainability and smart growth in a manner that respects and preserves the characteristics of the County's watersheds, drainage paths, water supplies, and natural resources.

The Project meets the applicability criteria in Chapter 12.84, and is designed in compliance with LID standards.

Title 20 Chapter 20.87: Construction and Demolition Debris Recycling and Reuse. Chapter 20.87 requires that at least 50 percent by weight, of all soil, rock, gravel, and project construction and demolition debris removed from a site must be recycled or reused, unless otherwise approved by the Director. The code requires submission of a Recycling and Reuse Plan and associated annual reporting to demonstrate compliance of the requiring recycling and reuse.

The Project meets the applicability criteria in Chapter 20.87, and would comply with the code requirements for construction debris recycling and reuse.

Title 20 Chapter 20.89: Solid Waste Generation Service Charge. The County levies an annual solid waste generation service charge upon each parcel of real property in unincorporated Los Angeles County. The fees collected are furnished in connection with the preparation, adoption, and administration of the Los Angeles County Household Hazardous Waste Element, and the Reduction and Recycling Element of the County Integrated Waste Management Plan.

The Project would comply with the solid waste generation service charge in accordance with the ordinance.

Title 22 Chapter 22.52: Green Building. On November 18, 2008, the Los Angeles County Board of Supervisors adopted green building development standards for projects constructed

after January 1, 2009. The green building ordinance requires that a minimum of 65 percent of non-hazardous construction and demolition debris by weight from non-residential buildings with a gross floor area of at least 10,000 square feet shall be recycled and/or salvaged for reuse.

The minimum 65 percent threshold to recycle and/or salvage for reuse under Chapter 22.52 supersedes the 50 percent minimum threshold in Chapter 20.87. The Project meets the applicability criteria in Chapter 22.52, and will comply with the code requirements for recycling and reusing at minimum of 65 percent of construction and demolition debris. Compliance with this recycling and reuse requirement will be enforced by methods and procedures set forth by the monitoring and recording requirements under Chapter 20.87.

***Title 32 Fire Code*.** The Los Angeles County Fire Code adopts the California Fire Code and International Fire Code, and provides fire protection design and practice measures, including demonstration of adequate firewater supply that apply to developments in the County.

The Project would be designed and maintained to meet the Los Angeles County Fire Code requirements.

5.14.1.3.4 Kern County General Plan. No applicable goals, policies, or objectives related to utility services were identified in the Kern County General Plan for the proposed off-site transmission line.

5.14.1.3.5 Willow Springs Specific Plan. No applicable goals, policies, or ordinances were identified in the Willow Springs Specific Plan (Kern County) relative to utility services.

5.14.2 Environmental Setting

5.14.2.1 Water Supply

5.14.2.1.1 Regional Water Supply. Water in the Antelope Valley is supplied from two primary sources: 1) naturally occurring water accumulated as surface water or groundwater (which provides between 50 and 90 percent of the total water supply) from rain and snow; and 2) imported surface water collected in northern California and piped down through the State Water Project (SWP) (LACDRP 2009). Currently, the demand for water exceeds the available supplies, and strategies to address this issue include groundwater recharge and groundwater banking, use of recycled water, demand management through conservation and water use efficiency, and efficiency upgrades through infrastructure improvements (RWMG 2007).

***State Water Project and Water Suppliers*.** SWP water from the California Aqueduct is purchased through the Antelope Valley-East Kern Water Agency (AVEK), which is allocated

up to approximately 160,000 AFY of water (LACDRP 2009). Four public water purveyors provide water service in the Antelope Valley Planning Area: Los Angeles County Waterworks Districts 37 and 40 (collectively, LACWWD 40), Quartz Hill Water District (QHWD), and Los Angeles County Sanitation District (LACSD). The LACWWD 40 and QHWD obtain their water supply from both groundwater and the SWP. LACSD supplies reclaimed water for non-drinking purposes (LACDRP 2009).

These water purveyors do not currently provide water service to or in the near vicinity of the Project site.

Antelope Valley Groundwater Basin. The Project site overlays the western portion of the Antelope Valley Groundwater Basin. The Antelope Valley Groundwater Basin is located within the South Lahontan Hydrologic Region, and is designated as Groundwater Basin Number 6-44. The surface of the entire Antelope Valley Groundwater Basin is over 1 million acres (1,580 square miles) and is topographically closed on the north and northwest by the Garlock Fault at the base of the Tehachapi Mountains, and on the south and southwest by the San Andreas Fault at the base of the Transverse Ranges, including the San Gabriel Mountains (see Figure 5.2-1).

The total storage capacity of the Antelope Valley Groundwater Basin has been reported at 68 million acre-feet (MAF) (Planert and Williams 1995 as cited in DWR 2004) to 70 MAF (DWR 1975 as cited in DWR 2004). Agricultural and urban uses have been the primary sources of discharge from the groundwater system. According to the U.S. Geological Survey (USGS 2003), groundwater extractions have exceeded the estimated natural recharge of the basin since the 1920s, which has resulted in declining water levels and land subsidence (primarily in the eastern portion of the Antelope Valley Groundwater Basin), as simulated by the USGS (USGS 2003). The average annual native recharge plus local return flows is currently estimated as approximately 82,300 AFY (LACDPW 2010). Coupled with return flows from imported water, the total sustainable yield of the Basin is estimated to be approximately 110,000 AFY (LACDPW 2010). A copy of the LACDPW 2010 document is included in Appendix J.2 of this EIR for reference.

Lancaster Subunit. The Antelope Valley Groundwater Basin is divided by the USGS into 12 subunits that are generally delineated based on groundflow patterns, recharge characteristics, and geographic location, as well as controlling geologic structures (RWMG 2007). The Project site is located in the western portion of the Antelope Valley Groundwater Basin in the Lancaster subunit. More specifically, the Project site is located within the westernmost part of this subunit within a triangular subarea formed by the apex intersection with the northwestern boundary being the southern edge of the Neenach Fault (Durbin 1978), the southern boundary being the southern edge of Antelope Valley Groundwater Basin, and the eastern boundary being a southwest to northeast trending line of consolidated rock

through the Antelope Buttes and Little Buttes (Durbin 1978). As a result of varying uses within the Lancaster subunit (e.g., urban uses in the eastern portion and agricultural uses in the rural western portion), depths to water levels vary widely, being generally greater in the south and west (RWMG 2007).

Groundwater Extraction and Recharge. Substantial pumping of groundwater in the Antelope Valley began in the early 1900s, and a decline in groundwater levels ensued in response to the change in the extraction versus recharge ratio. These changes varied both spatially and temporally across the Antelope Valley Region. Groundwater pumping peaked in the 1950s, and then decreased in the 1960s and 1970s when agricultural pumping declined. The rapid increase in urban growth in the 1980s resulted in an increase in the demand for municipal and industrial water, and an increase in groundwater use. The use of SWP water has helped stabilize groundwater levels in some areas of the Antelope Valley Region (RWMG 2007).

In general, data collected by the USGS (USGS 2003) indicate that groundwater levels appear to be falling in the southern and eastern areas of the Antelope Valley (RWMG 2007). In some localized areas there has been a slowing the rate of decline (RWMG 2007). In locations within the rural western (such as the Project location) and far northeastern areas of the region there has been a slight rise in groundwater levels (RWMG 2007). This pattern of falling and rising groundwater levels correlates directly to changes in land use over the past 40 to 50 years. Falling groundwater levels are generally associated with areas that are developed, and rising groundwater levels are generally associated with areas that were historically farmed, but have been largely fallow during the last 40 years (RWMG 2007).

The primary water-bearing materials in the Antelope Valley Groundwater Basin are Pleistocene and Holocene age alluvial and lacustrine deposits consisting of compact gravels, sand, silt, and clay (RWMG 2007). Recharge to the basin is primarily from perennial runoff from the surrounding mountains and hills. Most recharge occurs at the foot of the mountains and hills by percolation through the head of the alluvial fan system (Durbin 1978). The main source of recharge to the Lancaster subunit is stream flow from Big and Little Rock creeks draining from the San Gabriel Mountains. As previously discussed, the most recent available estimate of average annual native recharge to the Basin (plus local return flows) is approximately 82,300 AF (LACDPW 2010). Coupled with return flows from imported water, the total sustainable yield of the Basin is estimated to be approximately 110,000 AFY (LACDPW 2010). However, recharge estimates may vary depending on the calculation method and assumptions utilized (USGS 2003, USGS 1993). Groundwater recharge maps developed by Durbin (1978) indicate that the average annual recharge to the triangular area and the aquifer directly beneath the Project site is about 3,000 AFY (Durbin 1978; Plate 6).

The exact groundwater budget (i.e., water input versus output volume, or recharge additions versus extractions/losses) for the Antelope Valley Groundwater Basin is not available; however, estimates pertaining to groundwater production are available. An estimate from USGS (2003) contends that during the 1991 through 1995 period, groundwater extractions averaged 81,700 AFY. More current groundwater extraction rates are estimated to be approximately 160,000 AFY in 2008 (LACDPW 2010). Additionally, the demand for water is projected to increase (RWMG 2007). However, according to the Antelope Valley Integrated Regional Water Management Plan (RWMG 2007), long-term natural recharge of the Antelope Valley Groundwater Basin is expected to be stable, and when supplemented with imported water, it is anticipated that ground water pumping, and hence supply, will be reliable even in short-term and multiple year droughts. Thus, groundwater is considered a reliable water source in the Antelope Valley Region (RWMG 2007).

Project Area/Site Water Levels. A well investigation performed by URS within the Project area portion of the Antelope Valley Groundwater Basin included a review of well data within the Project area dating back to 1960, which indicated that water levels have risen and/or stabilized in most wells in the vicinity of the Project site (URS 2009) since the 1960s. In one well located adjacent to the proposed Project site on the east side of 160th Street West, the water level rose 50 feet between 1960 and 1988 and has stabilized at its present water level (approximately 110 to 115 feet below ground surface [bgs]) for the past 20 years. In the irrigation well at the Project site, the water level has declined about 2 feet since 1960 to 144 feet bgs. Groundwater levels just west of the site declined about 20 feet between 1946 and 1982, but rose back up to the previous high in the late 1990s and into the early 2000s. Additional data show that the average pumping rate for wells within approximately a 5-mile radius of the on-site irrigation well is about 1,100 gpm (1,773 AFY). These pumping rates and specific capacities for wells on the Project site and the surrounding area indicate that any new wells drilled within the site would likely have similar yields and pumping characteristics.

Based on a review of well records in the Project area, as well as groundwater contour data from Durbin (1978) and RWMG (2007), groundwater levels at the Project site appear to have remained steady from 1915 to 1961 and have been stable or increasing since 1961.

Project On-site Well Investigation and Pump Test. Based on the well investigation test performed on-site on August 24, 2009 (refer to Appendix J of this EIR), the Project's proposed pumping at the desired rates of 150 AFY during construction and 12 AFY during operation would be below the current, maximum recommended continuous well pumping rate of 250 gpm (403 AFY) for the Project site.

Antelope Valley Water Bank Project. As of early 2010, the approved Antelope Valley Water Bank Project is in progress, which involves construction and operation of underground

water recharge and storage facilities for imported SWP water. The Water Bank Project is located east of 170th Street West in Kern County, and is approximately 1.5 miles north of the Project site. Approximately 1.5 miles of the proposed transmission line route is located on the western border of the Water Bank Project area (east of 170th Street West in Kern County). When needed, stored water would be recovered for delivery to various water agencies, such as those in Kern, Los Angeles, and Orange counties. In addition to storing SWP water, the Water Bank Project would leave a portion of the recharge water in the aquifer to aid in recovery and slow the decline of the water table (KCPD 2006).

***Adjudication Process*.** Several property owners and public water suppliers initiated legal proceeding asking the Superior Court of California to determine the relative rights of users and potential users of the Antelope Valley Groundwater Basin (1-05-CV-049053: Antelope Valley Groundwater Cases, Consolidated Proceeding 4408). The case involves many complex legal issues, hundreds of parties, and may take years to be resolved.

The underlying dispute among the parties is the priority/superior right to pump the groundwater and the protection of the Basin. According to the Court's Order After Phase Two Trial on Hydrologic Nature of Antelope Valley, there are multiple claims to be adjudicated, including " declaratory relief, claims of prescription, claims of overlying owners to quiet title to water rights, claims that portions of the [B]asin should be treated as a separate area for management purposes in the event a physical solution to water use is established, among other issues and claims. The resolution of many of these claims is likely to be affected by the nature and extent of the hydrologic connectivity of water within various portions of the aquifer." In an Order scheduling the Third Phase of Trial, the Court stated that it will hear evidence as to whether the Basin is in overdraft. Additional issues in the Adjudication include the safe yield for the Basin, as well as appointment of a Watermaster to manage the groundwater in the Basin.. For purposes of this Section 5.14, including Sections 5.14.2.1.2 and 5.14.3.2.1, the relevant period for determining historic water usage within the Antelope Valley Groundwater Basin in the Adjudication process, which has implications for resolution of claims of prescription and claims of overlying owners to quiet title to water rights, is likely to be a 5-year period in the 1990s to be determined by the Court.

A final judgment in the Adjudication is expected to determine all groundwater pumping rights in the Basin and will likely result in the appointment of a Watermaster for the Basin. It is expected that any potential restrictions on groundwater pumping from the Antelope Valley Groundwater Basin will be determined in the Adjudication. Given the complexity of the legal issues involved in the Adjudication, the quantity of groundwater rights that will be allocated to individual property owners and public water suppliers in the Antelope Valley Groundwater Basin as part of the final judgment is uncertain, but predictable.

5.14.2.1.2 Project Water Supply. Currently, the only source of water at the Project site is groundwater, and the Project site has historically met its water demand through the use of on-site groundwater wells and an existing, on-site distribution system. In general, an owner of property in California overlying a groundwater basin has an "overlying" right to reasonable and beneficial use of water from the basin. The Project overlies the Basin; as such, the owner currently has an overlying right to use water from the Basin.

On-site Distribution System. The Project site contains two existing operational water wells: 1) a well that currently supplies the existing on-site farm residence; and 2) an agricultural well used for irrigation of the prior agricultural production activities on the property. The irrigation well was reported to have been drilled in 1965, and following installation, was pumped at a rate of 900 gpm (DWR 1965). No records have been identified to determine the date the farm residence well was drilled or the rate at which it pumped.

URS performed an investigation of the on-site irrigation well in November 2009, and the results of this investigation are provided in Appendix J. The well investigation determined that the maximum recommended continuous pumping rate (i.e., the rate at which the well would retain a minimum, adequate water column thickness) was 250 gpm (403 AFY). For reference, 1 gpm (continuous pumping) equals approximately 1.613 AFY.

Historical Water Use. The Project site has been farmed since the 1950s, and was irrigated from the 1950s through 2004 (URS 2008). During approximately the late 1960s through the early 1990s, the agricultural well was typically used to irrigate crops (primarily alfalfa) on parcels of land that were approximately 100 acres in size (Larsen 2010). Based on current estimates of irrigation water requirements of 7.76 AF per acre per year for alfalfa in the Antelope Valley (RWMG 2007), the historic agricultural water use for alfalfa on the Project site between approximately the late 1960s through the early-1990s was approximately 776 AFY. This water use occurred as recently as 1992 (Larsen 2010) and, for purposes of this assessment, is the historical water usage for the Project site in the Adjudication process.

As recently as 2004, the irrigation well was used to irrigate onions on approximately 80 acres of land (Larsen 2010). Based on current estimates of irrigation water requirements of 4.89 AF per acre per year for onions in the Antelope Valley (RWMG 2007), the agricultural water use on the Project site as recently as 2004 for onions was approximately 392 AFY.

Groundwater was used from the farm residence well for domestic purposes at the farmhouse; however, no records have been located that quantify the amount of groundwater used at the residence for domestic and farm operation-related purposes. However, using information from RWMG 2007, household water use for a farmhouse residence is estimated to be approximately 1 AFY. This water use occurred as of the date the NOP was filed for the Project in April of 2009.

As discussed previously in Section 5.14.2.1.1, groundwater levels in the Project area appear to have remained stable or increased since 1961 based on review of well records in the Project area as well as groundwater contour data from Durbin (1978) and RWMG (2007).

5.14.2.2 Electricity and Gas

The electrical utility provider in the Project area is Southern California Edison. Currently the nearest existing power lines to the Project site are located along the north and south sides of SR-138. The existing lines currently supply electrical needs to the on-site farm residence. North of the site, the nearest observed electrical distribution line crosses 170th Street West along West Avenue A-8, which is approximately 1 mile north of the Project site. Southern California (SoCal) Gas Company, which is a division of Sempra Energy, provides natural gas service to the Project area.

5.14.2.3 Solid Waste

In 2007, a total of 1.14 million tons of solid waste was collected in unincorporated Los Angeles County that was disposed into landfills (CIWMB 2009). Approximately 56 percent of the solid waste stream was diverted from the landfills through a combination of source reduction, recycling, and re-use efforts (Los Angeles County Solid Waste Management Committee 2009). The solid waste diversion rate in unincorporated Los Angeles County has generally increased since 1995, when the County diverted 27 percent of the solid waste stream. This percentage exceeded the 25 percent diversion goal under AB 939. The County has exceeded the AB 939, 50 percent target diversion rate since 2004, and based on preliminary estimates, is expected to have achieved a 62 percent diversion rate in 2008 (Solid Waste Management Committee 2009).

Los Angeles County has a large and complex waste management system with 8 major (i.e., facilities receiving more than 50,000 tons of solid waste per year) solid waste landfills, 4 small solid waste landfills, and 2 waste-to-energy facilities. Residential, commercial, and industrial solid waste collection is handled by private haulers. Once collected, the trash may be taken to any landfill that is willing to accept the waste. The facilities currently providing service to the unincorporated areas of Los Angeles County, and their remaining landfill capacities are presented in Table 5.14-2. Non-hazardous solid waste generated in Los Angeles County is disposed at Class III landfills, transformation facilities, permitted inert landfills, or out-of-county landfills. Refer to Section 5.15, Environmental Safety, regarding proper disposal of hazardous materials.

The Kern County Waste Management Department operates 7 landfills, 5 transfer stations, and 4 bin sites. Of these, 2 landfills, the Mojave-Rosamond Sanitary Landfill and the Bakersfield Metropolitan Sanitary Landfill, currently provide service to the Los Angeles County unincorporated areas (Table 5.14-1).

5.14.2.3.1 Disposal Trend. The County of Los Angeles plans for county-wide solid waste disposal capacity in 15-year periods, where the current planning period is from 2008–2022. The 2007 Los Angeles County Countywide Integrated Waste Management Plan Annual Report (May 2009) projects that the County would have a shortage of permitted disposal capacity during the current planning period if the County continues with status quo disposal practices (i.e., 50 percent diversion rate, no additional options such as additional of transformation facilities, no development of alternative technologies, no export to out of county facilities, etc.) (LACDPW 2009). However, the annual report also presents combinations of various strategies that if implemented, would feasibly allow Los Angeles County to meet the disposal capacity needed during the 15-year planning period. The strategies include: approval of planned expansion of existing landfills; approval of planned new facilities (refer to Table 5.14-1); development of additional conversion technologies; increase waste reduction and recycling; and expansion of transfer and processing infrastructure (LACDPW 2009).

Based on analysis of disposal trends in recent years however, LACDPW has observed that the current economic downturn has weakened consumer demand for materials, impacted the construction industry, and slowed the production and manufacturing of goods. As a result, the amount of waste that businesses and the public generate and dispose has been impacted (LACDPW 2009). From 2000–2005, the County experienced an increase of solid waste disposal that resulted from growth in population, economy, and the building industry. However, from 2006 to 2008, which represents a timeframe that includes the effects of the economic downturn, the County experienced an overall 19.6 percent decline (from 33,731 to 27,130 tons per day [TPD]) (Los Angeles County Solid Waste Management Committee 2009). LACDPW expects that the decline would continue into 2009 (LACDPW 2009), and the effect of the decline is estimated to extend landfill lifetimes. The County estimates that the Calabasas Landfill is expected to have a 3.5-year increase in operational years, the Antelope Valley Landfill lifetime has been increased by 2 years, and Scholl Canyon has an increased lifetime of 1.8 years) (Los Angeles County Solid Waste Management Committee 2009).

5.14.3 Project Impacts

5.14.3.1 Methodology and Significance Criteria

To fulfill CEQA requirements, impact analyses were conducted to determine the Project's potential for significant impacts to utility services. The following utility services significance criteria are based on the LACDRP thresholds of significance, which include consideration of Appendix G of the CEQA Guidelines. Impacts from the proposed Project would be considered significant and would require mitigation if the Project:

- Is located in an area known to have an inadequate public water supply to meet domestic needs or to have an inadequate ground water supply and proposes water wells
- Is located in an area known to have an inadequate water supply and/or pressure to meet fire-fighting needs
- Creates problems with providing utility services, such as electricity, gas, or propane
- Creates problems with any known service problems with solid waste
- Results in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services or facilities (e.g., fire protection, police protection, schools, parks, roads)

5.14.3.2 Impact Analysis

5.14.3.2.1 Criteria 1: Is the project site in an area known to have inadequate public water supply to meet domestic needs or to have an inadequate ground water supply and proposes water wells?

Facility Site. As discussed in Section 5.14.2.1.2, the current source of water at the Project site is groundwater. The proposed Project site is not currently served by a public domestic water supply system or a reclaimed water supply. There are no current legal restrictions on groundwater pumping in the Antelope Valley Groundwater Basin. An owner of property overlying a groundwater basin has an "overlying" right to reasonable and beneficial use of water from the Basin. The Project overlies the Basin; as such, the owner has an overlying right to use water from the Basin for the proposed Project, which would be reasonable and beneficial, as the Project will provide a new source of renewable energy in California. The Project proposes to utilize groundwater from on-site wells to supply the Project's short-term construction water needs and long-term operational water needs.

Project Water Use. The Project proposes to use groundwater to supply temporary construction and operational water needs.

Temporary Construction Water Use. During construction, the Project is estimated to require approximately 150 AFY (93 gpm of continuous pumping during the 38 month period of construction) for dust control, concrete preparation, process water, domestic use, fire protection needs, and short-term drip irrigation of screening vegetation along both sides of SR-138.

Operational Water Use. During operation, the Project is expected to use approximately 12 AFY (7.5 gpm of continuous pumping). Of this 12 AFY, 3 AFY are expected to be for domestic use associated with the O&M Building, and 9 AFY are expected to be for panel washing, dust control, maintenance use, and firewater needs. Panel washing is estimated to occur twice per year to remove dust and dirt off the solar panels, and would typically occur at nighttime when the evaporation rate is lower thereby conserving water. In addition, up to 3 AFY of additional water may be needed in the first 2 years of operation for supplemental plantings in the 10-foot-wide vegetated landscape areas along both sides of SR-138. It is considered unlikely, but possible, that additional water (up to 3 AFY) may be needed later during the operation phase for supplemental plantings if landscape vegetation expires and needs to be replaced.

On-Site Facilities. As discussed in Section 4.4.2.4 (Water Supply and Treatment, Project Description), the existing two on-site wells will be used for non-potable process water for construction and operation. A new well will be installed by the Applicant for potable domestic water adjacent to the Project O&M Building as shown on Figure 4.4-5A. Depending on when the new well is drilled, domestic water supply during construction will be supplied by either the new on-site well or through a water supply contractor. Domestic water during operations will be supplied by the new on-site well.

Water Saving Measures. The Project site is designed in accordance with the County LID standards (Title 12 Chapter 12.84, LID) and LID principals for beneficial hydrologic function, including preservation of water supplies (refer to Section 5.3, Flood Hazards for further detail). All on-site vegetation associated with proposed vegetated areas would be planted in accordance with Title 22 Chapter 22.52.52, Part 21, Drought Tolerant Landscaping requirements, minimizing the water required for landscaping. The Project O&M building would be constructed and operated in accordance with applicable green building standards, and would follow with other applicable provisions in accordance with Title 22 Chapter 22.52, Part 20, Green Building requirements.

Project Impacts. The threshold of significance is whether the Project site is in an area with an inadequate ground water supply and proposes water wells. Determining whether the groundwater supply in the area is adequate requires consideration of the sustainable yield for the Basin. Currently, as the Project overlies the Basin, the Applicant has an overlying right to use water from the Basin for the proposed Project. There are currently no legal restrictions on groundwater pumping. As discussed in Section 5.14.2.1.1, there is adequate groundwater supply in the Project area within the western portion of the Basin to meet the Project's water use based on historic groundwater contour data, well records in the Project area, and a well investigation/pump test performed on an on-site groundwater well. In addition, according to the Antelope Valley Integrated Regional Water Management Plan (IRWMP)(RWMG 2007), groundwater is considered a reliable water source in the Antelope Valley Groundwater Basin.

As discussed in Section 5.14.2.1.1, several property owners and public water suppliers initiated legal proceeding asking the Superior Court of California to determine the relative rights of users and potential users of the Antelope Valley Groundwater Basin. Given the complexity of the legal issues involved in the Adjudication of the Antelope Valley Groundwater Basin, the quantity of groundwater rights that will be allocated to any property owners and public water suppliers in the Antelope Valley Groundwater Basin as part of the final judgment (which will likely take several years), while able to be predicted, is nevertheless uncertain. It is expected that final judgment on the Adjudication will not occur until after the scheduled completion of Project construction. However, the Adjudication is expected to be completed during the operational life of the Project.

The Adjudication is expected to determine the safe yield for the Antelope Valley Groundwater Basin and implement a physical solution. Data from LACDPW (2010) estimates that the total sustainable yield of the Antelope Valley Groundwater Basin is 82,300 AFY based on the average annual native recharge plus local return flows, and approximately 110,000 AFY based on the average annual native recharge plus local return flows coupled with flows from imported water. To be conservative, this analysis assumes that the Basin's total sustainable yield is 82,300 AFY. Assuming this estimate is correct, the Project's water demand comprises a small percentage (0.18 percent) during construction under the total sustainable yield based on the average annual native recharge plus local flows. The Project's water demand during operation is 0.01 percent of the total sustainable Basin yield. It is anticipated that the final judgment in the Adjudication will allocate groundwater to the Project site in an amount sufficient to meet the Project's water demand within the safe yield for the Basin, such that no significant impact would occur.

To determine whether or not the Project would result in a significant impact, it is necessary also to consider whether the Project's water usage would be consistent with the amount of water estimated to be allocated to the Project site as its share of the safe yield for the Basin. Given the potential uncertainty inherent in the Adjudication, CEQA requires a discussion of reasonable foreseeable alternative water sources.

As discussed in Section 5.14.2.1.1, the high historical water usage for the Project site is approximately 776 AFY during a period that may be contemplated by the Adjudication. The proposed Project's construction water usage of 150 AFY (over a period of approximately 38 months) equates to less than 20 percent of the high historical groundwater usage at the Project site. The Project's long-term operational need of 12 AFY equates to less than 2 percent of the upper level of historical groundwater usage at the Project site.

Based on the historic groundwater usage at the Project site, it is anticipated that while an allocation of groundwater in the Adjudication may be significantly less than the upper level of historical groundwater usage of 776 AFY for the Project site, it is reasonably likely that

the Project site's allocation would meet the Project's operational water requirements of 12 AFY. As an overlying owner with historic usage, the Applicant has viable defenses to claims of prescription and will likely secure a correlative right to groundwater as an overlyer, either independently, or as a member of a class of small pumpers in the Adjudication in an amount sufficient to supply the Project. Therefore, because the Project's water usage would be consistent with the amount of water reasonably estimated to be allocated to the Project site, the Project would not result in a significant impact related to water supply.

In the unlikely event that it becomes necessary for the Project to supplement its overlying right to pump groundwater or its adjudicated allocation for the Project within the Basin, the Applicant could seek to acquire transferable groundwater rights from a landowner and/or public water supplier with transferable groundwater rights. Alternatively, the Applicant could pay an assessment to the Watermaster to pump groundwater from the Basin, which would be used to pay for imported water to be injected into the Basin. It is anticipated that groundwater rights acquired from landowners and/or public water suppliers, or from payment of an assessment to the Watermaster, would be pumped from existing wells at the Project site and would not require additional infrastructure. Since this water would be within the total sustainable yield for groundwater pumping established for the Basin, no significant impact would occur.

If the Applicant is not able to acquire groundwater from landowners and/or public water suppliers, or from payment of an assessment to the Watermaster, and it is necessary for the Project to supplement it overlying rights or adjudicated allocation, the Project could obtain the expected 9 AFY of water for panel washing, dust control, maintenance use, and firewater needs by purchasing and trucking fresh and/or reclaimed water from sources in the general Palmdale/Lancaster area. These sources may include wholesalers, retailers, or recycled water suppliers. The peak operational water use would occur during panel washing. Up to approximately 4.5 AF would be utilized twice per year. Each washing process would occur over approximately a 1-month period and would involve approximately 292 trucks making round trips to the Project site, or approximately 13 trucks per day travelling to the site via SR-138. Based on the air and traffic analyses conducted for the Project, this level of truck traffic would not present a significant air quality or traffic impact as discussed below.

The estimated air emissions associated with the operational phase of the Project (assuming water supply provided by on-site groundwater well[s]) are presented in Table 5.6-17. The addition of approximately 13 trucks (26 one-way trips per day over an approximate 1 month period) for the possible importation of panel wash water twice per year would increase operational phase maximum daily emissions by approximately the following amounts:

- PM_{10}: 1.2 pounds per day (lbs/day)(total daily Project operation emissions at 19.3 lbs/day; the applicable AVAQMD threshold is 82 lbs/day)

- $PM_{2.5}$: 1 lb/day (total daily Project operation emissions at 4.1 lbs/day; there is no applicable AVAQMD threshold)
- CO: 6.8 lbs/day (total daily Project operation emissions at 16.3 lbs/day; the applicable AVAQMD threshold is 548 lbs/day)
- ROC: 1.5 lbs/day (total daily Project operation emissions at 4.1 lbs/day; the applicable AVAQMD threshold is 137 lbs/day)
- NO_x: 30.2 lbs/day (total daily Project operation emissions at 40.9 lbs/day; the applicable AVAQMD threshold is 137 lbs/day)
- SO_x: <0.1 lb/day (total daily Project operation emissions at <0.1 lbs/day; the applicable AVAQMD threshold is 137 lbs/day)

As shown above, the increased truck traffic would not result in substantial air emissions and would not result in an exceedance of applicable AVAQMD thresholds.

The addition of approximately 13 trucks per day (over an approximate 1 month period) for the possible importation of panel wash water twice per year would increase operational phase traffic, including traffic on SR-138 and 170th Street West. The traffic analysis conducted for the operational phase of the Project assumed that typical Project operation-related traffic would consist of 16 workers generating 32 one-way trips per day. The traffic analysis presented in Section 5.11 for the Project concludes that affected intersections and roadway segments would all continue to operate at acceptable Level of Service (LOS) A or B (refer to Tables 5.11-16 and 5.11-18). The addition of 13 trucks (26 one-way trips) per day would result in a minor increase in roadway traffic. However, the traffic analysis performed for the Project construction phase assumed that the peak construction traffic would consist of up to 996 one-way trips (refer to Table 5.11-6), and that traffic impacts on intersections and roadway segments would be less than significant. The operational phase traffic with addition of 13 trucks per day (for trucking water to the site for panel washing) would increase from 32 one-way trips to 110 one-way trips per day (considering passenger car equivalent [PCE] ratio used where 1 truck equals 3 PCE). The 110 one-way trips is approximately 11 percent of the peak construction phase traffic (996 one-way trips), therefore, operational phase impacts with the addition of 13 trucks per day would result in less than significant traffic impacts as well.

An allocation of 12 AFY is only 2 percent of the historic water usage at the Project site. As discussed above, of this 12 AFY, 3 AFY are expected to be for domestic use associated with the O&M Building, which must be potable water. In the unlikely event that the Project site did not receive an allocation of at least 12 AFY for the Project's operational water requirements (two percent of the upper level of historic water usage), it is reasonably likely that the Project site would receive no less than 3 AFY for domestic use associated with the O&M Building. Three (3) AFY is 0.4 percent of the historical water usage at the Project Site.

In the unlikely event that the 3 AFY potable water requirement is not awarded in the Adjudication, the current pumping of 1 AFY will likely be authorized by the Court as de minimus. However, that would leave 2 AFY of potable water requirements, and 9 AFY of additional supplies necessary. As described above, the non potable water demand can be met with hauled water. With respect to potable water demand, it is anticipated that a Watermaster will be charged with monitoring the health of the basin. In doing so, a typical Watermaster would create a mechanism for an "assessment" for water pumped over the baseline authorized by the Adjudication. In this case, the Applicant would pay the Watermaster for the 2 AFY shortfall. The Watermaster could then take these funds and purchase replacement water from outside the Basin to offset the overdraft.

As discussed previously, all on-site vegetation associated with proposed vegetated areas would be planted in accordance with the County's Drought Tolerant Landscaping requirement, minimizing the water required for landscaping. Up to 3 AFY of additional water may be needed in the first 2 years of operation for supplemental plantings. It is possible, but unlikely, that up to 3 AFY of water may be needed at some point during Project operation if the landscaping dies and needs to be reestablished. It is anticipated that the final judgment in the Adjudication will allocate groundwater to the Project site in an amount sufficient to meet the Project's water demand within the safe yield for the Basin, such that no significant impact would occur. In the unlikely event that it becomes necessary for the Project to supplement its overlying right to pump groundwater or its adjudicated allocation, the Applicant would seek to acquire groundwater from landowners and/or public water suppliers, or from payment of an assessment to the Watermaster, or would purchase and truck water, as discussed above, all of which would result in a less than a significant impact.

The proposed Project site and surrounding area is not currently served by a public domestic water supply system or a reclaimed water facility; accordingly, these sources are not reasonably foreseeable alternatives at this time. The Applicant has explored the possibility of utilizing a public domestic water supply system; however, the public water purveyors in the Basin (see Section 5.14.2.1.1) do not provide water service to or in the near vicinity of the Project site, and thus use of a public domestic water supply system is not considered to be feasible at this time. In addition, there is no developed reclamation system on, adjacent to, or in the vicinity of the Project site. The Applicant has explored the possibility of utilizing reclaimed water; however, the closest interconnection for reclaimed water is at least several miles east of the Project site, and would require construction of a pipeline across private land. At this time, use of off-site reclaimed water via pipeline across private land is considered to be infeasible, as the Applicant does not have site control of the lands required for a reclaimed water pipeline to the site. However, in the future, if a public domestic water supply system or reclaimed water pipeline is constructed adjacent to the Applicant's site, the Applicant will consider use of these potential future supplies.

Further, it is not reasonable to reduce the size of the Project to use less water, as the Project as proposed uses very minimal water. As previously discussed, the Project's temporary water use during construction (150 AFY for approximately 38 months) would represent approximately 0.18 percent of the Basin's total sustainable yield. The Project's water use during operation of the Project (12 AFY) would represent approximately 0.01 percent of the Basin's total sustainable yield.

Off-site Transmission Line. Construction of the off-site transmission line would require use of water for concrete foundations and dust mitigation, which is included in the estimated overall Project water use during construction (i.e., total of 150 AFY). This water would be obtained from existing and proposed on-site groundwater wells, which are addressed in Section 5.14.3.2. Water needs during operation of the transmission line would be minimal if any, since the transmission line is expected to require little to no regular maintenance.

5.14.3.2.2 Criteria 2*:* Is the project site in an area known to have an inadequate water supply and/or pressure to meet fire-fighting needs?

Facility Site. The Project would maintain an estimated 100,000 gallon water tank near the O&M Building to provide fire protection water (90,000 gallons, as required by the Los Angeles County Fire Department) and service water (10,000 gallons) needs. Additionally, a second 10,000 gallon firewater tank would be installed and maintained near the southern site entrance (south of SR-138) along 170th Street West as shown on Figure 4.4-1A. As discussed above, the Project is not designed to require a substantial water supply, and the Project wells and on-site firewater storage tanks would be expected to be sufficient to meet fire protection water needs. Adequate firewater pressure will be delivered using an electric pump (although not required by the LACFD, a diesel-fueled backup pump may be installed by the Applicant so that firewater is available during power outages). As discussed in Section 5.14.3.2.1, there is sufficient water to supply the Project needs, including 100,000 gallons of firewater for the on-site firewater storage tanks. The firewater storage needs (100,000 gallons) is a small subset of the Project's overall construction and operation phase water requirements of 150 AFY and 12 AFY, respectively. For reference, the on-site well test performed in 2009 shows that the well is capable of continuous well pumping of 250 gpm (403 AFY). In the event that groundwater becomes unavailable, a backup water supply (e.g., via trucking) would be utilized to provide a reliable firewater supply. As a result, the Project would not be anticipated to cause significant impacts resulting from inadequate firewater supply or pressure.

Off-site Transmission Line. The proposed off-site transmission line route is located in Los Angeles and Kern counties. The proposed transmission structures are non-flammable, tubular steel poles. Firewater supplied by on-site groundwater wells (or backup supply) and the 100,000 gallon water tank would be available for responding fire truck use, if necessary.

As a result, the construction and operation of the off-site transmission line would not be expected to cause significant impacts resulting from inadequate firewater supply or pressure.

5.14.3.2.3 Criteria 3*:* Could the project create problems with providing utility services, such as electricity, gas, or propane?

Facility Site. Prior to Project earth-disturbing activities at the site, the Applicant would follow requirements under California Government Code Section 4216 to prevent incidents relating to damage of underground utilities.

The proposed Project is not planned to require gas service. During construction, the Project may require electrical service from SCE through the locally available power lines, and the Applicant would coordinate the electrical service with SCE. During operation, the Project would require power for facility auxiliary systems during non-daylight hours, including the O&M building, lighting, security systems, and nighttime solar panel tracker re-orientation to the east. During daylight hours, the Project's power needs would be supplied by the Project's generation. During non-daylight hours, electricity needs would be provided by either backfeed from the electrical grid (via the proposed off-site transmission line) or through the local SCE service (i.e., nearby power lines). Power from the transmission and distribution services would be stepped down to an appropriate voltage to supply the facility needs. As a result, construction and operation of the Project site would be expected to cause less-than-significant impacts to utility services.

Off-site Transmission Line. Prior to Project earth-disturbing activities for the proposed off-site transmission line, the Applicant would follow requirements under California Government Code Section 4216 to prevent incidents relating to damage of underground utilities. The proposed off-site transmission line would connect into SCE's planned Whirlwind Substation. The Applicant would plan and coordinate the interconnection with SCE such that connection into the substation would not result in interrupted service in the electrical grid. During operation, the off-site transmission line would deliver electricity to the Whirlwind Substation. During non-daylight hours, the Project could backfeed from the grid for electrical supply that would be used to support auxiliary systems on the Project site. As a result, construction and operation of the off-site transmission line would be expected to cause less-than-significant impacts to utility services.

5.14.3.2.4 Criteria 4*:* Could the project create problems with any known service problems with solid waste?

Facility Site. The Project's estimated solid wastes generated during construction consist of scrap wood, metals, glass, plastic, and vegetation debris (refer to Table 4.4-7 for disposal quantities). Scrap wood, metals, glass, plastic, and paper would be either recycled or disposed into a Class III landfill, as appropriate. Vegetation debris would be chipped,

mulched, and used on-site, or used at a landfill (i.e., as alternative daily cover). As addressed in Section 5.14.1.3.3, the Project would comply with County requirements under Title 22 Chapter 22.52 to recycle at a minimum, 65 percent of construction and demolition debris. Per Chapter 20.87, the Project Applicant would prepare a Recycling and Reuse Plan and progress reports (submitted to LACDPW Environmental Programs Division) to implement and document the Project's recycling practices. Solid wastes generated during operation would consist of intermittent office and packaging materials from supply deliveries (Table 4.4-5), which are expected to be easily incorporated into recycling waste streams. The Project would provide adequate areas for collecting and loading recyclable materials in accordance with the County's requirements to comply with SWRR.

During construction, the Project is estimated to temporarily generate: 68,952 TPY of scrap wood, metals, glass, plastic, and paper; and a one-time generation of 63,450 tons of vegetation debris. Vegetation would be mulched or composted on-site to assist in erosion control and limit waste disposal. Since the Project would recycle at least 65 percent of the generated solid waste, the Project's estimated maximum disposal quantities would be approximately 31,028 TPY of scrap materials and a one-time generation of 28,553 tons of vegetation debris during construction (note that this is a conservative estimate, and does not account for vegetation mulching and composting).

During operation, the Project is estimated to generate 31 TPY of office and packaging materials, which could be subject to any applicable forthcoming County recycling requirements developed in the future. At a maximum, solid waste generated throughout the Project's operating lifetime would represent 0.0000007 percent of the remaining disposal capacity at the nearest available landfill, Lancaster Landfill and Recycling Center.

The Project's recycling practices during construction and operation would reduce the amount of solid waste entering landfills, and the Project's overall contribution to solid waste disposal would be expected to be less than significant. As discussed in Section 5.14.2.3, Los Angeles County landfills are expected to provide adequate capacity to serve the existing population and planned growth for the current 15-year planning cycle (2008-2022) based on implementation of LACDPW strategies and current trends. As a result, construction and operation of the Project site is expected to cause a less-than-significant impact to solid waste services.

Off-site Transmission Line. The Project's estimated solid wastes generated during construction of the off-site transmission line consist of scrap wood, metals, glass, plastic, and vegetation debris. Quantities generated are included in estimates provided in Table 4.4-3. As addressed in Section 5.14.1.3.2, the Project would comply with County requirements under Title 20 Chapter 20.87 and Title 22 Chapter 22.52 for recycling planning, recycling quantities, and associated reporting requirements. Operation of the off-site transmission line

would require minimal maintenance, and would be expected to generate negligible quantities of solid waste. Potential vegetation clearance around the transmission line poles would be required; however, due to the existing primarily agricultural use and generally low vegetation density occurring along the transmission line route, vegetation management during operation is expected to generate insignificant amounts of brush and vegetation materials. As a result, construction and operation of the off-site transmission line would be expected to cause a less-than-significant impact to solid waste services.

5.14.3.2.5 Criteria 5*:* Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services or facilities (e.g., fire protection, police protection, schools, parks, roads)?

Facility Site. As discussed in Section 5.11, Traffic and Access, Section 5.12, Fire Protection Services, and Section 5.13, Sheriff Services, construction and operation activities at the Project site would be expected to result in less than significant impacts to maintain acceptable level of service, service ratios, response times, and performance objectives. Therefore, the Project construction and operation activities would not be expected to require new or physically altered roads, fire facilities, or sheriff facilities. The Project does not involve residential development, growth-inducing impacts (Section 7.2, Growth-inducing Impacts), or recreational uses that would affect schools and parks. As a result, the construction and operation of the Project would be expected to result in no impact to require new or physically altered government facilities.

Off-site Transmission Line. As discussed in Section 5.11, Traffic and Access, Section 5.12, Fire Protection Services, and Section 5.13, Sheriff Services, construction and operation activities associated with the off-site transmission line would be expected to result in less than significant impacts to maintain acceptable level of service, service ratios, response times, and performance objectives. Therefore, the off-site transmission line construction and operation would not be expected to require new or physically altered roads, fire facilities, or sheriff facilities. The proposed transmission line does not involve residential development, growth-inducing impacts (Section 7.2, Growth-inducing Impacts), or recreational uses that would affect schools and parks. As a result, the construction and operation of the off-site transmission line would be expected to result in no impact to require new or physically altered government facilities.

5.14.3.3 Indirect Impacts

The proposed Project, including the off-site transmission line, would not be expected to significantly increase utility service demands that could potentially result in interrupted service, or require additional staffing or expansion. Additionally, the Project would be anticipated to result in less than significant impacts to public service response times and level of service and therefore, would not interfere with emergency response efforts. As a result, the Project would be expected to result in less-than-significant indirect impacts on utility protection services.

5.14.4 Cumulative Impacts

Construction and operation of the Project would result in less than significant impacts to governmental and public facilities, which include electricity, gas, and solid waste services. During construction, the Project would follow required measures to prevent construction interference to utility services, and would comply with recycling requirements to minimize solid waste disposal to solid waste facilities. During operation, the Project would provide electricity, and would generate minimal amounts of solid waste. As a result, the Project's incremental contribution to cumulative impacts related to utility services would be less than significant.

The Project proposes to extract and use groundwater for construction and operation from a groundwater basin that may be in an overdraft condition. The proposed Project together with other existing and proposed groundwater users such as the Fairmont Butte Motorsports Park (proposed groundwater use of 49 AFY) could contribute to a cumulative impact on the groundwater resource. However, the Project's proposed minimal water extraction of 12 AFY during Project operations would constitute an insignificant contribution to any cumulative impacts to the Basin. Any long-term Project-related impacts on the Basin would be expected to be less than significant since the proposed withdrawals are minimal and would not exceed the allocations to be set as part of the Basin Adjudication in order to protect the Basin resource. The impacts of the proposed Project's minimal groundwater use of 150 AFY and 12 AFY during the construction and operations phases (i.e., about 0.18 and 0.01 percent, respectively, of the estimated total sustainable yield of 82,300 AFY for the Basin [LACDPW 2010]) would not be cumulatively considerable and would be less than significant.

5.14.5 Mitigation Measures

No mitigation measures are required for Utility Services.

5.14.6 Level of Significance after Mitigation

No potentially significant Project-related construction, operations, or cumulative impacts related to utility services are expected.

5.14.7 References

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TABLE 5.14-1
REMAINING CAPACITY OF EXISTING SOLID WASTE DISPOSAL FACILITIES AVAILABLE TO LOS ANGELES COUNTY[1]

Facility	Location	Estimated Remaining Capacity (Million Tons)	Permitted Daily Capacity (Tons Per Day [TPD])	Percentage Disposal Decrease at Major Facilities from 2006 to 2008
Los Angeles County Class III Landfills (Major and Minor Facilities)[2]				
Antelope Valley Recycling and Disposal Facility Units I and II[3]	Palmdale	8.692	3,200	-24%
Calabasas	Calabasas	8.17	3,500	-47%
Chiquita Canyon Landfill[3]	Valencia	9.52	6,000	-7%
Lancaster Landfill and Recycling Center	Lancaster	13.81	1,700	-35%
Puente Hills	Whittier	24.77	13,200	--
Scholl Canyon	Glendale	6.00	3,400	-27%
Sunshine Canyon City	Sylmar	4.63	5,500	--
Sunshine Canyon County	Sylmar	8.49	6,600	-23%
Whittier (Savage Canyon)	Whittier	4.26	350	--
Los Angeles County Waste-to-Energy Transformation Facilities				
Commerce Refuse-to-Energy Facility	Commerce	466.64	1,000	Negligible
Southeast Resource Recovery Facility (SERRF)	Long Beach	1,602.45	2,240	Negligible
Kern County Landfills Providing Service to Unincorporated Los Angeles County (Out-of-County)				
Mojave-Rosamond Sanitary Landfill[4]	Kern County	0.36	42	--
Bakersfield Metropolitan SLF[5]	Kern County	44,818,958 cubic yards[(5)]	4,500	--
Other Out-of-County Landfills Currently Available to Los Angeles County				
El Sobrante	Riverside County	122	10,000	--
Frank R. Bowerman Sanitary LF	Orange County	39	8,500	--
Olinda Alpha Sanitary Landfill	Orange County	18	8,000	--
Prima Deshecha	Orange County	74	4,000	--
Simi Valley	Ventura County	16	3,000	--
Mesquite Regional (Proposed)	Imperial County	600	20,000	--
Eagle Mountain (Proposed)	Riverside County	708	20,000	--

[1] Source: LACDPW. 2009. Los Angeles County Countywide Integrated Waste Management Plan: 2007 Annual Report. May 2009.

TABLE 5.14-1 (CONTINUED)
REMAINING CAPACITY OF EXISTING SOLID WASTE DISPOSAL FACILITIES AVAILABLE TO LOS ANGELES COUNTY

[2] List excludes landfills that do not accept waste from the Project area and landfills located on Santa Catalina and San Clemente islands.

[3] Proposed Expansion:

- Antelope Valley Recycling & Disposal: Additional 8.96 million tons of capacity. Status: Expected operation in 2009.
- Chiquita Canyon Landfill Expansion: Additional 32 million tons of capacity. Status: Conditional use permit currently in review.

[4] Source: County of Kern, County of Kern Annual Disclosure Report: Fiscal Year 2007-08. January 13, 2009.

[5] Source: California Integrated Waste Management Board, Bakersfield Metropolitan SLF Jurisdiction Landfill Overview. 2009. Note: Remaining Capacity information is current as of 2000, and is reported in cubic yards. Remaining capacity in tonnage is not available.

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5.13 SHERIFF SERVICES

This section describes the sheriff services that would be affected by the AV Solar Ranch One Project (Project). The following discussion addresses existing sheriff services in the Project area, identifies and analyzes potential Project needs and impacts on sheriff services, and recommends measures to reduce or avoid impacts anticipated from Project construction and operation.

5.13.1 Regulatory Setting

5.13.1.1 Federal

No federal laws, orders, regulations, or standards were identified that are applicable to sheriff services for the proposed Project.

5.13.1.2 State

5.13.1.2.1 Assembly Bill (AB) 844, as Amended, Berryhill – Amendment to Section 21606. AB 844 was approved on December 1, 2008, and amends the existing State Business and Professions Code Section 21606. The amendments increase junk dealer and recycler operations accountability, and increase penalties for potential purchase of stolen scrap metals and nonferrous materials. This legislation is potentially relevant to the proposed Project during the construction and operational phases related to possible theft of Project construction materials and solar power generation-related materials (e.g., copper wiring, solar panels, electrical equipment, etc.).

5.13.1.2.2 California Government Code Section 8561 – California Disaster and Civil Defense Master Mutual Aid Agreement. The California Disaster and Civil Defense Master Mutual Aid Agreement is an agreement made and entered into by and between the State of California, various state departments and agencies, and the various political subdivisions, municipal corporations, and other public agencies of the State of California. The purpose of the agreement among the participants is to provide voluntary aid and assistance to each other to cope with different types of disasters, including law enforcement efforts.

5.13.1.3 Local

No goals, policies, or objectives directly applicable to sheriff services were identified in the Los Angeles County General Plan (1993), Antelope Valley Areawide General Plan (1986), Los Angeles County 2008 Draft General Plan, Kern County General Plan (2007), or the Willow Springs Specific Plan (2008) in Kern County.

5.13.2 Environmental Setting

The AV Solar Ranch One Project site is located in the rural portion of the Antelope Valley, in northern unincorporated Los Angeles County. The Project site is located on parcels north and south of SR-138, where the westernmost boundary is 180th Street West and the easternmost extent is 155th Street West. A large portion of the site was historically used for agricultural production and grazing, and also contains a farmhouse with associated structures (e.g., shed, tanks, agricultural wells, etc.). Surrounding lands are vacant with portions historically used for agriculture and grazing. The nearest residence to the Project site is located approximately 0.4 mile to the west.

The Project involves a proposed off-site transmission line, which would traverse north of the site along 170th Street West, cross into unincorporated Kern County, and interconnect into the planned SCE Whirlwind Substation. The proposed off-site transmission line route is located within the 170th Street West road right-of-way (ROW) and adjacent private land, and traverses agricultural fields in Kern County. The proposed transmission line route is located near one residential use located on the west side of 170th Street West near the intersection with Gaskell Road. Additionally, there is another residence located on the east side of 170th Street West near the intersection with Gaskell Road.

Approximately 1.5 miles of the off-site transmission line route is located in Los Angeles County and 2 miles in Kern County. The Project site and the off-site transmission line route are served by sheriff services from both the Los Angeles County Sheriff Department (LASD) and the Kern County Sheriff Office.

5.13.2.1 Los Angeles County Sheriff Department

The Project site and a portion of the off-site transmission line route (approximately 1.5 miles) are served by the LASD. LASD is the largest sheriff's department in the world, comprising more than 19,000 personnel. LASD is responsible for more than 10 million County residents, and provides direct law enforcement services to 2.7 million residents who live in the unincorporated areas and 40 contract cities (Los Angeles County 2009).

The Project site and the portion of the off-site transmission line in Los Angeles County are located within the area defined by LASD as Field Operations Region 1 and have not been identified as areas with special law enforcement needs.

The nearest patrol station to the Project site is Lancaster Station, which is located at 501 West Lancaster Boulevard, and is approximately 20 miles from the Project site. The Lancaster Station is staffed by 234 sworn officers and 60 civilian personnel (Willoughby 2009). The station has primary responsibility for covering an area of over 600 square miles, including the City of Lancaster and the communities of Antelope Acres, Quartz Hill, and

Lake Los Angeles, and is estimated to serve a population of 190,000 residents (LASD 2009). In the event of a significant emergency, first responders from other stations and may be called upon to respond to emergencies within the Project service area. Additionally, LASD has Mutual Aid Agreements with neighboring law enforcement organizations to further strengthen emergency services.

5.13.2.1.1 Level of Service Standards.

Service Ratio. The LASD determines that an officer-to-population ratio of one deputy sheriff per 1,000 residents would be adequate to reach a desired level of service for its service area. As discussed previously, Lancaster Station has 234 sworn officers and provides service to approximately 190,000 residents in its service area. As a result, the Lancaster Station maintains a service ratio of approximately one deputy per 812 residents, which exceeds the goal for a 1:1,000 ratio.

LASD deputies are dispatched based on appropriate level of service standards. Factors used to determine the appropriate level of service of a particular area consider the residential population, nature of crimes, statistical reports, size of area, type of land uses, and transient and visitor populations.

Response Times. One means that the County uses to measure the adequacy of sheriff services is the response time for a law enforcement unit to respond to a request for service. Response times are classified depending on the type of call (emergency, priority, routine), and depend on traffic, distance to the site of the call, and availability of officers. Responses are handled by the nearest available patrol car located within the patrol area. The LASD has established optimal response times for services of 10 minutes or less for emergency response incidents; 20 minutes or less for priority incidents; and 60 minutes or less for routine responses. According to the Lancaster Station, the average response times from the Lancaster Station to the Project area is 8.9 minutes for emergency calls, 17.5 minutes for priority calls, and 88.3 minutes for routine calls (Willoughby 2009).

5.13.2.1.2 Los Angeles County Sheriff Department Funding. The LASD budget comes from state and local tax revenues. These funds are augmented by revenue generating contracts (i.e., contract law enforcement) and grant allowances.

5.13.2.2 Kern County Sheriff Office

The proposed off-site transmission line route along 170th Street West (within the road ROW and adjacent private lands) continues from the Los Angeles County line into Kern County for approximately 2 miles prior to the proposed interconnection into the planned SCE Whirlwind Substation. The portion of the Project transmission line route in Kern County is located within the Kern County Sheriff Office service boundaries. The Sheriff Office provides law

enforcement services for an area of over approximately 500 square miles (Kern County Sheriff Office 2009).

The Kern County Sheriff Office has identified that the recent downturn in the economy has caused a large increase in unemployment, which has made rural communities a target for theft from suspects not normally associated with rural crime thefts (County of Kern 2009). The County fiscal year (FY) 2008–2009 mid-year results indicate that the County has maintained a stolen property recovery rate more than double the State average. The County also acknowledges that adoption of AB 844 on December 1, 2008, has significantly decreased metal theft (County of Kern 2009).

The sheriff station nearest to the off-site transmission line route is the Rosamond Substation which is located at 1379 Sierra Highway, and is approximately 15 miles east of the transmission line route. The Rosamond sheriff substation is staffed with 14 assigned officers, 2 investigators, 1 sergeant, and 2 civilian employees. Based on communications with the Rosamond sheriff substation, the response time for high priority (emergency) calls to the Project transmission line area is approximately 10 minutes (Williams 2009). In the event of a significant emergency, first responders from other Kern County stations may be called upon to respond to emergencies within the Project service area. Additionally, the Sheriff Office has Mutual Aid Agreements with neighboring law enforcement organizations to further strengthen emergency services.

5.13.3 Project Impacts

5.13.3.1 Methodology and Significance Criteria

In accordance with CEQA requirements, impact analyses were conducted to determine the Project's potential for significant impacts to sheriff services. The following sheriff services significance criteria are based on the LACDRP thresholds of significance, which include consideration of Appendix G of the CEQA Guidelines. Impacts from the proposed Project would be considered significant and would require mitigation if the Project:

- Creates staffing or response time problems at the sheriff substation(s) serving the Project site
- Is associated with any special law enforcement problems pertaining to the Project or the general area

5.13.3.2 Impact Analysis

5.13.3.2.1 Criteria 1: Could the project create staffing or response time problems at the sheriff substation(s) serving the project site?

Facility Site. The proposed Project site is located within the LASD Field Operations Region 1 service area. The Lancaster Station, which is approximately 20 miles southeast of the Project site, would likely be the first responder to incidents at the site. Currently the station maintains an officer-to-population service ratio of 1:812, which exceeds the County goal of 1:1,000. The Project does not involve residential use, and would not be considered to result in significant increases to population (refer to Section 7.2, Growth-inducing Impacts). During construction, workers would be temporary, and would not be expected to relocate to the Project area. During operation, the Project is anticipated to require 16 full-time personnel to operate, maintain, and provide security enforcement measures at the Project site. The employees are planned to be hired from the available local workforce, and would not be expected to result in significant changes to the local population that would increase the level of demand on law enforcement services.

As discussed in Section 5.11, Traffic and Access, construction and operation of the Project of the on-site facilities would not result in significant traffic impacts. However, the Project would involve construction of power lines over SR-138 and 170th Street West, which may require work on the public road ROW, and may potentially encroach into the traveled roadway. As a result, Mitigation Measure 5.11-1, Project Adequate Worksite Traffic Control, is proposed to require worksite traffic control plans, permits, and coordination with County departments regarding potential Project construction impacts to SR-138 and 170th Street West. Implementation of this mitigation measure would be expected to minimize potential effects to SR-138 and 170th Street West such that LASD access and response times to less than significant levels. As a result, construction of the Project site would be expected to result in less than significant effects to LASD services and response times, such that the Project would not require additional LASD staffing.

Off-site Transmission Line. The proposed off-site transmission line route would be located along the public road ROW of 170th Street West for 1.5 miles within Los Angeles County. The proposed transmission line route is shown in detail on Figures 4.3-4A and 4.3-4B in Section 4.0 (Project Description). The 2-mile portion of the proposed transmission line route in Kern County is proposed to be constructed on private lands adjacent to 170th Street West and within the public road ROW. An expanded study area is designated along portions of the route in Kern County to accommodate final siting of the route. The 1.5-mile portion in Los Angeles County is located within the LASD Region 1 service area. As with the Project site, the Lancaster Station would likely be the first-responder to incidents along this portion of the transmission line; however, additional stations may be dispatched to provide law

enforcement support, as needed. The 2-mile portion of the Project off-site transmission line route in Kern County is located within the Kern County Sheriff Office service area. The closest sheriff substation is the Rosamond Substation, which is approximately 15 miles east of the proposed transmission line.

Construction workers for the off-site transmission line would be temporary, and would not be expected to relocate to the Project area for residence. As a result, the Project would be expected to have less than significant effects related to potential population increase in the Project area. As addressed in Section 5.11, Traffic and Access, the proposed transmission line route is directly accessible via 170th Street West in both Los Angeles and Kern counties. The Project would comply with County requirements for access and safety considerations.

Operation of the proposed off-site transmission line would consist primarily of annual visual inspections and periodic washing of insulators, and vegetation management at pole locations and access pathways, if needed. These activities would be infrequent and transient in nature, and would occur within the public road ROW or on private lands outside of the traveled roadway. As discussed in Section 5.11, in the case where the transmission line requires maintenance or repair involving equipment and use of the public road ROW, traffic control measures (in accordance with Mitigation Measure 5.11-1 in Section 5.11.5, Mitigation Measures) would be implemented to ensure safe access (i.e., through placement of advance warning signs, use of proper merging taper and/or shifting lane schematics, and flagmen) so as to not significantly impact sheriff response times. As a result, construction and operation of the off-site transmission line would be expected to cause less than significant effects to LASD and Kern County Sheriff Office staffing and response times.

5.13.3.2.2 Criteria 2: Are there any special law enforcement problems associated with the Project or the general area?

Facility Site. The Project site is not located within an area of special law enforcement problems. The Project site however, encompasses the majority of an approximately 2,100 acre property, and involves construction and operation of costly equipment and materials. To prevent potential theft and vandalism, the Project would be designed and operated with security measures, as described in Section 4.0, Project Description, which include security fencing, controlled access gates, and 24-hour staffing, including full-time security employees whom would conduct regular site security patrolling throughout the site. Based on the proposed security measures, the Project is anticipated to result in less than significant effects pertaining to special law enforcement problems.

Off-site Transmission Line. As with the Project site, the off-site transmission line route area has not been identified with special law enforcement problems. Kern County has acknowledged that rural areas have been targeted for theft during the recent economic

downturn. However, the County has also identified that theft in rural areas has also decreased following enactment of AB 844 on December 1, 2008. During construction, transmission line laydown areas would not likely contain easily accessible or mobile materials. During operation, theft of the Project transmission line components would not be considered likely due to the size and secure nature of transmission structures and associated electric shock hazards. Therefore, the proposed off-site transmission line would result in less than significant effects pertaining to special law enforcement problems.

5.13.3.2.3 Indirect Impacts. The proposed Project, including the off-site transmission line, would be expected to result in less than significant effects related to law enforcement service demands and would not be expected to require additional staffing or expansion of sheriff services. The Project would also be anticipated to result in less than significant impacts to sheriff department response times, and therefore would not interfere with emergency response efforts. The Project location and Project characteristics are not identified with special law enforcement problems. Additionally, the Project security measures would be expected to minimize or preclude potential theft, vandalism, or other crime activities at the Project site; therefore, the Project would not be expected to create special law enforcement situations. As a result, the Project would be expected to result in less than significant indirect impacts to sheriff services.

5.13.4 Cumulative Impacts

As analyzed in Section 5.13.3 above, the Project would not cause effects to result in significant demands to sheriff staffing or response times. The Project would also implement site security control, including 24-hour security monitoring in order to prevent potential theft and vandalism activities. Additionally, a portion of the Project taxes levied would be allocated to sheriff services. As a result, construction and operation of the Project would be anticipated to result in less than significant incremental contributions to cumulative fire protection impacts. Therefore, cumulative impacts associated with sheriff services would be less than significant.

5.13.5 Mitigation Measures

No mitigation measures are required for sheriff services.

5.13.6 Level of Significance after Mitigation

No potentially significant Project-related construction, operations, or cumulative impacts related to sheriff services are expected to occur associated with implementation of the proposed Project.

5.13.7 References

City of Lancaster. 2007. City of Lancaster 2030 General Plan Master Environmental Assessment. April 2007.

Kern County Budget Unit 2210. 2009. County of Kern 2009-2010 Recommended Budget: Sheriff-Coroner. 2009.

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Williams, S. 2009. Deputy – Kern County Sheriff Office, Rosamond Substation. Personal communication with URS Corporation (C. Chan). May 22, 2009.

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5.12 FIRE PROTECTION SERVICES

This section describes the fire protection services that would be affected by the proposed AV Solar Ranch One Project (Project). The following discussion addresses the regulatory setting and existing fire protection services in the Project region, identifies and analyzes potential Project impacts, and recommends mitigation measures, where applicable, to reduce or avoid adverse impacts anticipated from Project construction and operation. Project considerations and analysis for fire hazards are addressed in Section 5.4, Fire Hazards.

5.12.1 Regulatory Setting

5.12.1.1 Federal

No federal laws, orders, regulations, or standards were identified related to fire protection services for the proposed Project.

5.12.1.2 State

5.12.1.2.1 California Government Code Section 8561 – California Disaster and Civil Defense Master Mutual Aid Agreement. The California Disaster and Civil Defense Master Mutual Aid Agreement is an agreement made and entered into by and between the State of California, various state departments and agencies, and the various political subdivisions, municipal corporations, and other public agencies of the State of California. The purpose of the agreement among the participants is to provide voluntary aid and assistance to each other to cope with different types of disasters, including fires.

5.12.1.3 Local

5.12.1.3.1 Los Angeles County General Plan (1993). No goals, policies, or objectives directly applicable to fire protection services were identified in the Los Angeles County General Plan.

Antelope Valley Areawide General Plan (1986). No applicable goals, policies, or objectives were identified in the Antelope Valley Areawide General Plan.

5.12.1.3.2 Los Angeles County 2008 Draft General Plan Update – Goal PS-7, Chapter 9. Goal PS-7 is to have a county with reliable and satisfactory fire protection services and facilities. Under this Goal, Policies PS 7.1–7.3 promote land use development in conjunction with fire services, support expansion of fire protection facilities, and encourage ongoing evaluation of fire protection service funding.

5.12.1.3.3 Los Angeles County Proposition E Special Tax Measure of 1997. The Special Tax is levied specifically to fund essential fire suppression and emergency medical services.

The Special Tax rate is levied according to land use and can be adjusted annually by the County Board of Supervisors. Any adjusted increase may not exceed the 2 percent maximum allowed. Revenue from the 2009–2010 fiscal year (FY) Special Tax is estimated to be $72.8 million (County of Los Angeles 2009a).

Project Implementation Measure. The current Special Tax (Fiscal Year 2009–10) for non-residential use is $67.98 + $0.0458 per square foot over 1,555 square feet (Todd 2010).

5.12.1.3.4 Los Angeles County Developer Fee Program and Developer Fee Detailed Fire Station Plan. The Developer Fee Program was authorized by the Los Angeles Board of Supervisors in 1990, and functions to generate funds for capital projects necessary to maintain fire protection services within the existing service areas. The Program establishes a reasonable relationship between the developer fees collected and the Los Angeles County Fire Department (LACFD) Developer Fee Detailed Fire Station Plan, which identifies LACFD plans for acquisition, construction, expansion, improvement, and equipping of fire station facilities. Effective February 1, 2010, the developer fee rate for the Antelope Valley (Area of Benefit 3) is $0.8755 per square foot of new floor area of buildings (Todd 2010).

Project Implementation Measure. The Project is located within the Area of Benefit 3 (Antelope Valley). Based on most recent adopted rate (Todd 2010), the current assessed developer fees on the proposed operations building would be a rate of $0.8755 per square foot. Fees from new developments are assessed at the rate in effect at the time building permits are issued.

5.12.1.3.5 Kern County General Plan. No applicable goals, policies, or objectives related to fire protection services were identified in the Kern County General Plan for the proposed off-site transmission line.

5.12.1.3.6 Willow Springs Specific Plan. No applicable goals, policies, or ordinances were identified in the Willow Springs Specific Plan (Kern County) relative to fire protection services.

5.12.2 Environmental Setting

The AV Solar Ranch One Project site is located in the rural portion of Antelope Valley, in northern unincorporated Los Angeles County (refer to Figure 4.3-1). This area is at the southwestern end of the Mojave Desert, and is characterized by temperature extremes and common high winds. The Project site is located on parcels north and south of SR-138, where the westernmost boundary is 180th Street West and the easternmost extent is 155th Street West. Area vegetation consists of low desert scrub and agricultural use. A large portion of the site was historically used for agricultural production and grazing, and also contains a farmhouse with associated structures (shed, tanks, agricultural wells, etc.). Surrounding lands

are vacant with portions historically used for agriculture and grazing. The nearest residence to the Project site is located approximately 0.4 mile to the west.

The Project involves a proposed off-site transmission line, which would traverse north of the site along 170th Street West, cross into unincorporated Kern County, and interconnect into the planned SCE Whirlwind Substation (refer to Figures 4.3-1 and 4.3-3). The proposed off-site transmission line would be located within the 170th Street West road right-of-way (ROW) and adjacent private lands, and traverses agricultural-related operations in Kern County. The proposed transmission line route is located near two residences north of the intersection of 170th Street West and Gaskell Road.

Approximately 1.5 miles of the off-site transmission line route is located in Los Angeles County and 2 miles in Kern County. The Project site and the off-site transmission line route are served by fire protection services from both the LACFD and the Kern County Fire Department (KCFD).

5.12.2.1 Los Angeles County Fire Department

The Project site and a portion of the off-site transmission line route (approximately 1.5 miles) are served by the LACFD. LACFD provides fire protection services to more than 4 million residents in unincorporated Los Angeles County and in 58 cities that contract with the Department. The unincorporated territory of the County is designated with Fire Zones 1, 2, 3, 4, or Very High Fire Hazard Severity and Buffer Fire Zones. According to the Antelope Valley Area Plan Update Background Report (LACDRP 2009), areas of Very High Hazard Severity Zones are located roughly south of the California Aqueduct, which at the closest point is approximately 4.4 miles south of the Project site. According to the LACFD, the Project site and vicinity is considered Fire Zone 3 (Pantana 2009). According to the Los Angeles County Ordinance Chapter 26.150, all of the unincorporated territory within the County is established as Fire Zone 3 by default, except where established otherwise.

The Project site and the portion of the off-site transmission line in Los Angeles County are located within the LACFD service area for Battalion 11. Battalion 11 encompasses 11 fire stations (refer to Table 5.12-1) and is headquartered in Lancaster. Units from the closest available fire station typically provide emergency response. Ten stations are located within 20 miles of the Project site (Stations 78, 112, 157, 140, 130, 134, 33, 129, 117, 135, in order of increasing distance from the Project site) that could provide rapid response to a fire service call. In the event of a significant incident, LACFD may dispatch units from any station in the entire department system. Station 78, which is geographically closest to the site, is the jurisdictional station (i.e., first-responder) for the Project site. Station 78 employs 3 24-hour on-duty daily staff, and can be augmented with Call Fire Fighters (CFF) as needed.

Stations 112, 140, and 157 are Call Firefighter (CFF) stations, which are common in rural and remote areas of Los Angeles County. Call Firefighters are employed by the department to serve at rural stations that do not require full-time staffing, and operate as first responders under the supervision and direction of Station 33 (Battalion 11 Headquarters).

In the event of a significant fire event, fire responders are dispatched from their respective jurisdictions. In the event that resources are unavailable from the jurisdictional station, other Los Angeles County battalion and jurisdictions may be called upon to respond to emergencies. Similarly, units from Station 78 may be called upon to assist fire personnel in other areas and cities. Additionally, in accordance with the California Disaster and Civil Defense Master Mutual Aid Agreement, in the event of a catastrophic event, fire protection services from departments outside of Los Angeles County, including the KCFD would also respond as needed.

5.12.2.1.1 Level of Service Standards. The County bases the adequacy of fire services on performance measures, where the target response time for all 9-1-1 calls in the Project area (i.e., rural areas) is less than 12 minutes (County of Los Angeles 2009b). LACFD is currently meeting this response time, and is expected to meet this target response time during FY 2009–2010 (County of Los Angeles 2009a).

5.12.2.1.2 LACFD Funding. Sources of LACFD fire protection services (operation and staffing) funds include property tax assessments, voter approved special tax (Section 5.12.1.3.3), and in the case of Antelope Valley, a mitigation Developer Fee Program (Section 5.12.1.3.4).

The LACFD proposed budget for fiscal year (FY) 2009–2010 is $908,909,000, which reflects a $30,108,000 cut from the FY 2008–09 budget ($939,017,000) (County of Los Angeles 2009a). The reduction to the LACFD budget is representative of the County's overall fund decrease resulting from the current recession and economic conditions. However, the LACFD proposed budget is expected to maintain the current level of emergency staffing and support services, and includes additional positions needed to support increased service demands (County of Los Angeles 2009a). As discussed above, the County bases the need for funding on the adequacy of fire services, which is contingent upon meeting performance measures (County of Los Angeles 2009b). LACFD is currently meeting this response time, and the projected FY 2009–10 budget is expected to maintain this response rate. The Fire Department's critical needs are considered financed in the FY 2009–2010 budget request (County of Los Angeles 2009a).

The LACFD Developer Fee Program generates funds for land acquisitions, additional facilities, apparatus, and equipment. Fees from new developments are collected at the time building permits are issued, and are used to fund new Fire Station facilities and apparatus as

detailed in the LACFD Developer Fee Detailed Fire Station Plan, which also identifies budgeted funds for the identified capital improvements (LACFD 2009a).

The Developer Fee Detailed Fire Station Plan (LACFD 2009b) identified a new Call Fire Station 174 to be located in Neenach, which is a small unincorporated community approximately 7.5 miles west of the Project site. According to the Fire Station Plan, developer fees would fund the anticipated capital costs of the new station. The Fire Department is in the process of identifying potential sites to purchase for the station, which has a target occupancy in 2010–2011. This new station would increase the resources available for fire protection response to the Project.

5.12.2.2 Kern County Fire Department

The proposed off-site transmission line route along 170th Street West (within the public road ROW and adjacent private land) continues from the Los Angeles County line into Kern County for approximately 2 miles prior to interconnection into the planned SCE Whirlwind Substation. Based on the California Department of Forestry and Fire Protection, the proposed transmission line route is not located within a recommended Local Agency Very High or High Fire Hazard Severity Zone (California Department of Forestry and Fire Protection 2007).

The portion of the Project transmission line route in Kern County is located within the KCFD service boundaries. KCFD provides fire protection services for over 500,000 citizens living in the unincorporated areas and 9 cities, and operates 46 fire stations throughout the County.

The KCFD station nearest to the off-site transmission line route is Rosamond Station 15, which is approximately 13.5 miles northeast of the transmission line. The Rosamond station is staffed with three firefighters and one engine and their response time to the off-site transmission line area is approximately 15 to 20 minutes (Epps 2009). The second nearest station is Mojave Station 14, which is approximately 20 miles northeast of the proposed transmission line route. In the event of a significant fire event, fire responders from other Kern County stations and jurisdictions may be called upon to respond to emergencies within the Project service area. Additionally, KCFD has 14 Mutual Aid Agreements with neighboring fire suppression organizations to further strengthen emergency services.

5.12.3 Project Impacts

5.12.3.1 Methodology and Significance Criteria

To fulfill CEQA requirements, impact analyses were conducted to determine the Project's potential for significant impacts to fire services. The following Fire Services significance criteria are based on the LACDRP thresholds of significance, which include consideration of

Appendix G of the CEQA Guidelines. Impacts from the proposed Project would be considered significant and would require mitigation if the Project:

- Creates staffing or response time problems at the fire station(s) serving the Project site
- Is associated with any special fire problems, or would be subjected to special fire problems associated with the general area

5.12.3.2 Impact Analysis

5.12.3.2.1 Criteria 1: Could the project create staffing or response time problems at the fire station serving the project site?

Facility Site. The proposed Project site is located within the LACFD Battalion 11 service area. Station 78, which is 6 miles south of the proposed Project site, is the jurisdictional station (i.e., first-responder) to respond to incidents at the site. Additional fire stations within Battalion 11 (identified in Table 5.12-1) would also potentially be dispatched to respond to fire protection needs at the site.

During construction, workers would be temporary, and would not be expected to relocate to the Project area (Section 7.2, Growth Inducing Impacts); therefore, the construction of the proposed Project is not anticipated to create significant changes to the local population that would increase the level of demand on fire protection services. During operation, the Project is anticipated to require 16 full-time personnel to operate, maintain, and provide security enforcement measures at the Project site. The employees are planned to be hired primarily from the available local workforce, and would not be expected to result in significant changes to the local population (Section 7.2, Growth-Inducing Impacts) that would increase the level of demand on the fire department services such that additional staff would be needed.

As discussed in Section 5.11, Traffic and Access, construction and operation of the Project of the on-site facilities would not result in significant traffic impacts. However, the Project would involve construction of power lines over SR-138 and 170th Street West as well as within the public road ROW of 170th Street West. Transmission line construction would require work in the public road ROW, including limited encroachment into the traveled roadway. As a result, Mitigation Measure (MM) 5.11-1, Project Adequate Worksite Traffic Control, is proposed to require worksite traffic control plans, permits, and coordination with County departments regarding potential Project construction impacts to SR-138 and 170th Street West. Additionally, MM 5.11-1 requires that the County of Los Angeles Fire Department First Stations 78, 112, and 140 are notified at minimum of three days in advance of any street closures that may affect fire/paramedic responses in the area. In the event that the Project would require road closures, alternate route details (detour plans) and the

schedule of closures would be submitted to the LACFD prior to construction, as required by Mitigation Measure 5.11-1. Implementation of this mitigation measure would be expected to minimize potential effects to SR-138 and 170th Street West (and cross streets) such that LACFD access and response times to less than significant levels.

Based on the Project's conformance to federal, state, and Los Angeles County ordinances for fire protection and proposed mitigation measures identified in Section 5.4, Fire Hazards, construction and operation at the Project site would not be expected to result in significant special fire problems or hazards. Additionally, Project construction and operation traffic would not be anticipated to have a significant impact on local intersections and road segments. As a result, construction of the Project site and off-site transmission line would be expected to result in less than significant effects to LACFD staffing and response times.

While the Project would be expected to result in less than significant impacts to LACFD staffing or response times, the Project would be required to provide taxes and fees as per the Los Angeles County Developer Fee Program, property tax assessments, and Proposition E Special Tax, which are allocated to the LACFD. These taxes and fees are designed to provide for potential increases in LACFD fire protection service demands to accommodate for new and existing developments.

Off-site Transmission Line. The Project off-site transmission line route is proposed to be located within the public road ROW for 1.5 miles within Los Angeles County. The 1.5 mile portion in Los Angeles County is located within the LACFD Battalion 11 service area. As with the Project site, the likely first-responder to incidents along this portion of the transmission line route would be Station 78; however, additional stations would be dispatched to provide fire protection support, as needed. The approximately 2-mile portion of the proposed off-site transmission line route in Kern County would be located within the public road ROW and adjacent private lands within the KCFD fire protection service area. The closest station is Rosamond Station 15, which is 13.5 miles northeast of the transmission line route. Similar to Los Angeles County, additional KCFD stations would be dispatched in the event that further support was required.

Construction workers erecting the off-site transmission line would be temporary, and would not be expected to relocate to the Project area for residence. As a result, the Project would not be expected to cause a significant increase in the population of the Project area. The proposed off-site transmission line would be readily accessible from 170th Street West over its entire length. The transmission line would involve construction along 170th Street West and adjacent private land, which would include work within the public road ROW, including encroachment into the traveled roadway in some locations. As a result, MM 5.11-1, Project Adequate Worksite Traffic Control, is proposed to require worksite traffic control plans, permits, and coordination with County departments regarding potential Project construction

impacts to SR-138 and 170th Street West. Additionally, MM 5.11-1 requires that the County of Los Angeles Fire Department First Stations 78, 112, and 140 are notified at minimum of 3 days in advance of any street closures that may affect fire/paramedic responses in the area. Implementation of this mitigation measure would be expected to minimize potential effects to SR-138 and 170th Street West (and cross streets) such that LACFD access and response times to less than significant levels.

Operation phase activities for the off-site transmission line would consist primarily of annual visual inspections and periodic washing of insulators, and vegetation management at pole locations and access pathways, if needed. These activities would be infrequent and transient in nature, and would occur within the public road ROW or on private lands outside of the traveled roadway. As discussed in Section 5.11, in the case where the transmission line requires maintenance or repair involving equipment and use of the public road ROW, traffic control measures (in accordance with Mitigation Measure 5.11-1 in Section 5.11.5, Mitigation Measures) would be implemented to ensure advance notification and safe access so as to not significantly impact fire and emergency response times.

As a result, construction and operation of the off-site transmission line would be expected to cause less than significant effects to LACFD and KCFD staffing and response times.

5.12.3.2.2 Criteria 2: Are there any special fire problems associated with the Project or the general area?

Facility Site. The Project site is located within Fire Hazard Zone 3, which is not considered a special high fire hazard area (i.e., not within Fire Hazard Zone 4 or Very High Fire Hazard Severity Zone) that would require additional development restrictions. Additionally, the proposed Project site is not located within a state identified Very High, High, or Moderate Fire Hazard Severity Zone (CAL FIRE 2007a). LACFD representatives have expressed concerns regarding on-site vegetation and associated fire hazards during Project operation. As a result, the Project would implement MM 5.4-1, Fire Protection and Prevention Plan, that would establish standards and practices to minimize the risk of fire danger and response during Project construction and operation. The standards and practices addressed in the Plan would include: maintenance and use of mechanical equipment; fuels and vegetation management; inspection and monitoring program; and identification of personnel responsible for implementing the Plan. Based on the Project's conformance to applicable Los Angeles County requirements for fire protection and the proposed MM 5.4-1 identified in Section 5.4, Fire Hazards, construction and operation at the Project site would not be expected to result in significant special fire problems or hazards. Therefore, the Project would be expected to result in less than significant effects pertaining to special fire problems or fire protection services.

Off-site Transmission Line. As with the Project site, the 1.5-mile portion of the off-site transmission line within Los Angeles County is located within a Fire Hazard Zone 3, which is not considered a high fire hazard area (i.e., Fire Hazard Zone 4 or Very High Fire Hazard Severity Zone). According to the California Department of Forestry and Fire Protection, the approximately 2-mile-long portion of the transmission line route in Kern County is not located within a recommended Local Agency Very High or High Fire Hazard Severity Zone (CAL FIRE 2007). Based on the Project's conformance to federal, state, and local (Los Angeles County and Kern County) requirements for transmission line fire protection (addressed in Section 5.4, Fire Hazards), construction and operation of the off-site transmission line would not be expected to result in significant special fire problems or hazards that would result in a significant increased demand for fire services. Therefore, the proposed off-site transmission line would be expected to result in less than significant effects pertaining to special fire problems.

5.12.3.3 Indirect Impacts

The proposed Project, including the off-site transmission line, would not be expected to significantly increase fire service demands that may require additional staffing or expansion. The Project would also be anticipated to result in less than significant impacts to fire department response times, and therefore would not interfere with fire emergency response efforts. The Project location and characteristics are not identified with special fire problems, and hence, the Project would not be expected to create special fire situations. As a result, the Project is expected to result in less than significant indirect impacts on fire protection services.

5.12.4 Cumulative Impacts

Based on the analyses of the Project impacts to fire protection services, the Project is anticipated to result in less than significant direct and indirect impacts to fire protection services. The Project would be designed with appropriate fire protection considerations, and would also result in less than significant impacts to staffing and response times. Furthermore, the Project would be required to provide taxes and fees to the County that are designed to address cumulative fire department needs associated with new and existing developments. As a result, the proposed Project would be anticipated to result in less than significant incremental contributions to cumulative fire protection impacts.

5.12.5 Mitigation Measures

No mitigation measures are required for fire protection services.

5.12.6 Level of Significance after Mitigation

No potentially significant Project-related construction, operations, or cumulative impacts related to fire protection services are expected.

5.12.7 References

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TABLE 5.12-1
FIRE STATIONS SERVING THE PROJECT SITE AND OFF-SITE TRANSMISSION LINE

Fire Station	Location	Distance to Project Site[1]	Access to Project Site
Battalion 11, Los Angeles County Fire Department[2]			
Station 33, Battalion 11 Headquarters	44947 Date Avenue Lancaster, 93534	16 miles southeast	Via SR-14 to SR-138
Station 78	17021 North Elizabeth Lake Road Palmdale, CA 93550	6 miles south	Separated from SR-138 by rural roads
Station 84	5030 W Avenue L-14 Quartz Hill, 93536	21 miles east	Via West Avenue E (or other local road) to SR-14 to SR-138
Station 112 (CFF)	8812 West Avenue E-8 Lancaster, CA 93535	9 miles east	Via 90th Street West to SR-14 to SR-138
Station 117	8812 West Avenue E-8 Lancaster, 93535	19 miles southeast	Via West Avenue I to Sierra Highway or SR-14 to SR-138
Station 129	42110 6th Street West Lancaster, 93534	17 miles southeast	Via SR-14 to SR-138
Station 130	44558 40th Street West Lancaster, CA 93536	13 miles southeast	Via 40th Street West (or other local road) to SR-138
Station 134	43225 N 25th Street West Lancaster, 93534	15 miles southeast	Via West Avenue K-8 (or other local road) to SR-138
Station 135	1846 East Avenue K-4 Lancaster, 93535	19 miles southeast	Via West Avenue K (or other local road) to SR-14 to SR-138
Station 140 (CFF)	8723 Elizabeth Lake Road Leona Valley, CA 93550	12 miles southeast	Separated from SR-138 by rural roads
Station 157 (CFF)	15921 Spunky Canyon Road Green Valley, CA 91350	10 miles south	Separated from SR-138 by rural roads
Kern County Fire Department (Off-site Transmission Line Route)[3]			
Rosamond Station 15	3219 35th West Street Rosamond, CA 93560	13.5 miles northeast	Via Rosamond Boulevard (or other local road) to 170th Street West
Mojave Station 14	1953 Highway 58 Mojave, CA 93501	20 miles northeast	Via SR-14 to Rosamond Boulevard (or other local road) to 170th Street West

1 Direct distances.

2 Source: LACDRP 2009. Antelope Valley Area Plan Update Background Report.

3 Source: Kern County Fire Department (http://www.kerncountyfire.org/, accessed July 20, 2009).

5.11 TRAFFIC AND ACCESS

The CEQA Initial Study prepared by Los Angeles County determined that the AV Solar Ranch One Project (Project) has the potential to cause significant impacts related to traffic and access, thus requiring further analysis as presented in this EIR. The analysis of traffic and access includes a description of the regulatory setting, existing traffic conditions, the traffic impact assessment methodology, impact significance criteria, anticipated Project impacts (direct and cumulative), mitigation measures, and the expected levels of significance after mitigation.

This impact assessment for traffic and access is based on the analysis presented in the Traffic Impact Analysis Report (URS 2010) in Appendix G of this EIR.

5.11.1 Regulatory Setting

This subsection describes the federal, state, and local policies and regulations that are pertinent to traffic and access.

5.11.1.1 Federal

5.11.1.1.1 Title 49, Code of Federal Regulations, Parts 171–177. Title 49, Parts 171-177 governs the transportation of hazardous materials, the types of materials defined as hazardous, and the marking of the transportation vehicles. The administering agencies for the above regulation are the California Highway Patrol (CHP) and the United States Department of Transportation (USDOT).

5.11.1.1.2 Title 14, Code of Federal Regulations, Section 77.13(2)(i). Requires an applicant to notify the FAA of construction of structures with a height greater than 200 feet from grade or greater than an imaginary surface extending outward and upward at a slope of 10 to 1 from the nearest point of the nearest runway of an airport with at least one runway more than 3,200 feet in length.

The administering agency for the above regulation is the USDOT, Federal Aviation Administration (FAA). The proposed Project would be developed on land with minimal grade changes that do not exceed the height of 200 feet, and there are no existing airport land uses within the immediate vicinity of the proposed Project. Therefore, notification to the FAA would not be required.

5.11.1.2 State

5.11.1.2.1 California Vehicle Code, Sections 2500–2505. Authorizes the Commissioner of Highway Patrol to issue licenses for the transportation of hazardous materials.

5.11.1.2.2 California Vehicle Code, Sections 31303-31309. Requires that the transportation of hazardous materials be on the state or interstate highway that offers the shortest overall transit time possible. The administering agency for the above statutes is the CHP.

5.11.1.2.3 California Vehicle Code, Section 35550. Imposes weight guidelines and restrictions upon vehicles traveling upon freeways and highways. The section holds that "a single axle load shall not exceed 20,000 pounds. The load on any one wheel or wheels supporting one end of an axle is limited to 10,500 pounds. The front steering axle load is limited to 12,500 pounds." Furthermore, CVC Section 35551 defines the maximum overall gross weight as 80,000 pounds and adds that "the gross weight of each set of tandem axles shall not exceed 34,000 pounds." The administering agency for the above statute is the California Department of Transportation (Caltrans).

5.11.1.2.4 California Vehicle Code, Section 35780. Requires a Single-Trip Transportation Permit to transport oversized or excessive loads over state highways. The permit is acquired can be acquired through Caltrans.

5.11.1.2.5 The California Streets and Highways Code, Sections 660, 670, 672, 1450, 1460, 1470, 1480 et seq. This code defines highways and encroachments, and requires encroachment permits for projects involving excavation in State Highways and County Roadways. This law is generally enforced at the local level. The administering agencies for this regulation are Caltrans, the Los Angeles County Department of Public Works, and the Kern County Resource Management Agency, Roads Department. The Project would need to apply for encroachment permits for any excavation in state and county roadways prior to construction.

5.11.1.2.6 California Health and Safety Code, Section 25160 et seq. This code addresses the safe transport of hazardous wastes, requires a manifest for hazardous waste shipments, and requires a person who transports hazardous waste in a vehicle to have a valid registration issued by the Department of Toxic Substances Control (DTSC) in their possession while transporting hazardous waste.

5.11.1.2.7 California Manual on Uniform Traffic Control Devices (Ca MUTCD) Section 5-1.1. Requires a temporary traffic control plan be provided for "continuity of function (movement of traffic, pedestrians, bicyclists, transit operations), and access to property/utilities" during any time the normal function of a roadway is suspended.

For the proposed Project, the administering agencies for the above regulation are the Los Angeles County Department of Public Works (LACDPW) and the Kern County Resources Management Agency, Roads Department. If required, the Applicant would file a Traffic Control Plan prior to the start of construction. The Traffic Control Plan would be designed to allow for continued function of the roadway network allowing the flow of vehicles, and other

forms of traffic movement expected throughout the area, to experience minimal interruptions in travel through efficient functionality. Traffic Control Plans must be designed by a Professional Engineer, and if deemed necessary, a Traffic Engineer, and must be approved by the local jurisdiction prior to implementation during the construction phase of the proposed Project.

5.11.1.3 Local

5.11.1.3.1 Los Angeles County General Plan Transportation Element. Key roadways in Los Angeles County serve as vital transportation corridors within the Antelope Valley. The Transportation Element sets the direction for the development of a comprehensive, coordinated, and continuing transportation system for Los Angeles County.

5.11.1.3.2 Kern County General Plan Circulation Element. The Kern County Circulation Element includes policies regarding maintenance of acceptable levels of roadway service and setback distances from County roadways during the planning process for new developments.

5.11.2 Environmental Setting

The study area for the traffic and access analysis includes the immediate vicinity of the proposed Project area and the surrounding local and regional circulation system, which could be affected by traffic generated by the proposed Project during construction of the facility and its operation. The proposed Project site is located on State Route 138 (SR-138) between Interstate 5 (I-5) on the west, and State Route 14 (SR-14) on the east. A regional vicinity map is presented on Figure 4.3-1. In general, the Project study area for the traffic analysis includes intersections along SR-138 between I-5 and SR-14.

A description of the existing transportation system and existing Levels of Service (LOS) and roadway segments is provided below. Each of the key roadways, as well as associated study intersections within the study area, is discussed below. Figure 5.11-1 presents a schematic representation of the Project study area for the traffic study.

5.11.2.1 North-south Facilities

5.11.2.1.1 Interstate 5. I-5 is a major north-south interstate freeway through Los Angeles County and the length of California, extending from San Diego County towards the states of Oregon and Washington. I-5 is located 22 miles west of the Project site, and provides for 4 mainline lanes in each direction with wide shoulders and a center median.

5.11.2.1.2 State Route 14. The Antelope Valley (AV) Freeway or SR-14 is a north/south regional roadway approximately 15 miles east of the project site. SR-14 provides regional access from the cities of Lancaster, Palmdale and unincorporated areas within the AV. Near the vicinity of the project site, the freeway generally provides 2 lanes per direction then

widens to 3 lanes in each direction with high occupancy vehicle (HOV) lanes to the south towards I-5. Full ramp access is provided at the SR-14 and SR-138 interchange.

5.11.2.1.3 170th Street West. This is a north/south local roadway that provides primary north-south access to the proposed Project site off SR-138. This street is currently configured with 1 travel lane in each direction.

5.11.2.1.4 160th Street West. This is a north/south local roadway that provides alternate north-south access to the Project site. The north and south leg of 160th Street West at SR-138 are currently unpaved. Currently, 160th Street West is not passable to the north within the site boundary.

5.11.2.2 East-west Facilities

5.11.2.2.1 State Route 138. SR-138 is an east/west oriented regional facility that traverses and provides direct access to the Project site. SR-138 generally runs east-west from SR-14 to the I-5 Freeway with one travel lane in each direction. Full ramp access is provided at both the I-5 and SR-14 interchanges. Caltrans has tentative plans to expand the SR-138 in the future subject to funding, final design, and environmental review/approvals.

As required by Los Angeles County and consistent with the Caltrans Project Study Report for State Route 138 (SR-138) between Interstate 5 (I-5) and State Route 14 (SR-14), dated March 23, 2009, and County roadway width requirements, a dedication in fee simple shall be offered by the Applicant to Caltrans of additional land on both sides of the existing Caltrans right-of-way, from 160th Street West to 170th Street West, to provide a total right-of-way width of 100 feet on both sides of the centerline of SR-138, or as otherwise required by Caltrans, for a total right-of-way width of 200 feet. From 170th Street West to 175th Street West, a dedication in simple fee shall be offered of additional land north of the Caltrans right-of-way of SR-138 for a total right-of-way width of 100 feet north of centerline of SR-138, or as otherwise required by Caltrans up to a total SR-138 right-of-way width of 200 feet. The dedicated area shall be maintained by Applicant until such time the deed for the applicable area is transferred to Caltrans. Additionally, an irrevocable 10-foot-wide slope easement on both sides of the 200-foot-wide Caltrans right-of-way, from 160th Street West to 170th Street West, and on the north side of the Caltrans easement from 170th Street West to 175th Street West, shall be offered to the County. The location of this easement shall be determined once Caltrans identifies the location of the 200-foot-wide easement. The slope easement shall be maintained by the Applicant until such time that the County installs improvements.

5.11.2.3 Existing Traffic Conditions and Study Area Roadways and Intersections

The traffic data collected in 2009 for the traffic study (refer to Appendix G) includes 24-hour roadway segment counts and a.m. and p.m. peak hour study intersection counts which are used in the traffic impact analysis. For analysis purposes, peak hour data were collected during the 7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m. peak hours. These peak hours are the standard adjacent street traffic peak hours used in the Institute of Transportation Engineers (ITE) Trip Generation Manual and the majority of traffic analyses. The traffic analysis focuses on existing and future (with Project) levels of service (LOS) at pertinent roadways and intersections. An explanation of LOS levels is presented in Table 5.11-1.

Based on the results of the traffic study field review, a total of 9 key study area intersections and 6 roadway segments were identified for analysis in the traffic study as shown in Tables 5.11-2 and 5.11-3, respectively. The existing conditions at each of the applicable intersection and roadway segments are presented in Table 5.11-4 and 5.11-5, respectively.

As shown in Tables 5.11-4 and 5.11-5, all of the intersections and roadways considered in the traffic study are currently operating at LOS A or B.

5.11.2.4 Project Site

The proposed Project site is located in the Antelope Valley, in unincorporated Los Angeles County, approximately 15 miles northwest of downtown Lancaster. The Project site can be accessed via SR-138 (West Avenue D) from I-5 or SR-14 from the west and east, respectively. The property consists of approximately 2,100 acres and occupies an area both north and south of SR-138. The Project site is approximately bounded on the north by West Avenue B-8, on the south by West Avenue E, on the east by 155th Street West, and on the west by 180th Street West.

5.11.2.5 Off-site Transmission Line

The proposed 230-kV transmission line consists of an approximately 3.5-mile-long off-site segment and a 0.75-mile-long on-site segment. The total transmission line length is approximately 4.25 miles, and is proposed to run within the public road right-of-way (ROW) of 170th Street West and/or adjacent private lands to interconnect to SCE's planned Whirlwind Substation north of the Project site in southern Kern County. The northern portion of the proposed transmission line route (approximately 2 miles) is located in southern Kern County and generally consists of agricultural land. As shown in Table 5.11-4, 170th Street West is currently operating at LOS A at the intersection of SR-138 to the south of the proposed transmission line route.

Construction of the proposed 230-kV transmission line within the 170th Street West ROW and on adjacent private lands is expected to take place over a period of 4 months. The proposed transmission line is expected to require a total of approximately 46 poles. The transmission line route and pole locations would be located approximately 5 feet inside the edge of the public ROW in the portion within Los Angeles County. For the portion in Kern County, the transmission line route and poles would be located within the public ROW or adjacent private lands.

5.11.3 Project Impacts

5.11.3.1 Methodology

5.11.3.1.1 Overview. This section discusses the potential effects of the proposed Project development onto existing traffic operations within the proposed Project vicinity, which includes the study area intersections and several roadway segments.

The proposed Project is planned to proceed at a construction rate of 8–10 MW of installed solar power generation capacity per month. The proposed Project includes two different solar array foundation options – concrete ballast and pile foundations. The pile foundation scenario constitutes the worst-case basis for the traffic impact analysis, thus this traffic analysis focuses on the workforce and truck deliveries associated with the pile foundation option.

During the construction phase of the proposed Project, the construction workforce for the pile foundation scenario is expected to peak at approximately 906 daily one-way trips (this includes 92 daily one-way trips generated by 46 on-site management staff and 814 daily one-way trips generated by 407 construction and manufacturing workers). For this analysis, the trip generation for larger vehicles other than passenger cars (e.g., delivery trucks) has been adjusted into Passenger Car Equivalent (PCE), where one delivery vehicle is equivalent to 3 PCE. The construction delivery truck traffic during construction is estimated to peak at 90 daily one-way trips (PCE) based on a peak of 15 truck deliveries per day. The project construction phase analysis considers the combined effects of construction worker and delivery truck traffic (i.e., total of 996 daily one-way trips at peak). The project operations phase analysis evaluated the 32 daily one-way operational trips for 16 workers. The operations phase traffic would be negligible relative to the construction phase traffic.

Additionally, the traffic analysis assumes that construction workforce traffic would occur during the a.m. (7:00 a.m. to 9:00 a.m.) and p.m. (4:00 p.m. to 6:00 p.m.) peak periods, which constitutes a worst-case analysis. This approach is conservative since the currently planned construction start time is 7:00 a.m., which essentially avoids the a.m. peak commute hours. The traffic analysis assumes that approximately 30 and 20 percent of the construction delivery trucks would enter the site during the morning and evening peak hours, respectively. The analysis also assumes that 20 and 30 percent of the construction delivery trucks would

exit the site during the morning and evening peak hours, respectively. The balance of the truck trips (50 percent) are assumed to occur during off-peak hours of the day.

Based on the proposed site development plan, the traffic analysis assumed that the intersection of SR-138/170th Street West would be used as the primary access point to the Project site. During the initial stages of project construction, all projected construction traffic would access the Project site north of SR-138. Upon completion of the northern project area it is assumed that all construction would commence on the Project site to the south of SR-138. These assumptions present a worst-case traffic assessment scenario since it is assumed the entire peak construction workforce and associated truck deliveries would be accessing either the Project area north of SR-138 or south of SR-138 at one particular time.

5.11.3.1.2 Project Trip Generation, Distribution, and Assignment. A forecast of the expected traffic volumes to be generated from the proposed Project was calculated based upon information in Section 4.0 (Project Description).

The traffic impact analysis evaluated both peak project construction and project operations scenarios. Based on the anticipated higher number of trips during peak project construction, the peak construction trip generation is considered the worst case condition that would occur during the anticipated 30-year lifespan of the proposed Project.

During project construction, the proposed Project is anticipated to pursue a level of construction development that would build 8–10 MW of generating capacity per month. Table 5.11-6 shows the forecast peak project construction trip generations.

The vehicular trips traveling to and from the project site would be composed primarily of construction staff, trade workers and material and equipment deliveries to support the construction activities. To estimate the vehicular trips generated during construction, the key terminologies used in the development of the trip generation tables include:

- Individual Vehicles – would represent cars, worker pickups and sport utility vehicles (SUV).
- Trucks – would be characterized as non-personal vehicles that are intended to transport heavy, bulky, loose materials and fluid products/materials that cannot be reasonably carried by personal or lighter vehicles. For the proposed Project's use, they have been pre-defined to serve a purpose (i.e., delivering/hauling construction materials and equipment as well as to support project operational needs).
- PCE – stands for Passenger Car Equivalent and is used to convert trucks and other larger vehicle types into equivalent passenger car unit. Typically, a PCE factor of 3 is used to convert one truck into 3 passenger equivalent. This assumption is conservative and is a generally accepted practice and approved by reviewing agencies.

Table 5.11-7 shows the forecast project operations trip generation forecast after construction and represent the normal day-to-day operational trips at the Project site. Additional operations related and trips including material deliveries and maintenance trips at the Project site are anticipated to be minimal and infrequent.

Table 5.11-8 shows the proposed Project operations trip distribution assumptions consistent with the geographical location of the Project site. The proposed Project and operations generated trips were assigned to the surrounding local and regional roadway system based on the projected manpower labor pool and material and equipment source and origin.

5.11.3.1.3 Analysis Methodology and Level of Service Analysis. The traffic analyses conducted for this study were performed in accordance with County of Los Angeles traffic impact analysis guidelines, Los Angeles County CEQA guidelines, and the Los Angeles County Congestion Management Program (CMP) requirements. Detailed information on intersection analysis methodologies, standards, and thresholds are discussed in the following sections. It should be noted that typically, within the County of Los Angeles, signalized intersection operations and LOS measurements follow the Intersection Capacity Utilization methodology. However, since all the study area intersections for the traffic study are unsignalized, the Highway Capacity Manual Unsignalized Intersection Methodology was used in the traffic assessment.

Level of Service Descriptions. Level of Service is an indicator of operating conditions on a roadway or at an intersection and is defined in categories ranging from A to F, with A representing the best traffic flow conditions and F representing poor conditions. LOS A indicates free-flowing traffic and LOS F indicates substantial congestion with stop-and-go traffic and long delays at intersections. Table 5.11-1 shows the Level of Service descriptions used in the traffic analysis.

This section presents the methodologies used to perform peak hour intersection capacity analysis, and considers both signalized and unsignalized intersections, as applicable. It should be noted that currently, there are no signalized intersections in the study area.

Signalized Intersection Analysis. The analysis of signalized intersections utilizes the analysis procedure as outlined in the County of Los Angeles Department of Public Works Traffic Impact Analysis Guidelines and the Los Angeles County CMP Guideline. This procedure is known as Intersection Capacity Utilization (ICU) methodology and defines LOS in terms of Volume-to-Capacity (V/C) ratio. This technique uses 1,600 vehicles per hour per lane (VPHPL) and 2,880 (VPHPL) for dual left turn lanes as the maximum saturation volume of intersections. As noted previously, there are no signalized intersections in the Project study area. Additionally, the traffic levels associated with the proposed Project do not

warrant the installation of new signals at existing intersections, therefore, no actual analysis of signalized intersections was performed for this Project.

Unsignalized Intersection Analysis. Unsignalized intersections, including two-way and all-way stop controlled intersections were analyzed using the 2000 Highway Capacity Manual (Section 10) unsignalized intersection analysis methodology. The LOS for a two-way stop controlled (TWSC) intersection is determined by the computed or measured control delay and is defined for each minor movement.

The County of Los Angeles considers LOS D or better during the a.m. and p.m. peak hours to be the maximum acceptable intersection LOS. This is consistent with the approach outlined in the Los Angeles County CMP. The traffic impact analysis presented herein uses this criterion (i.e., LOS D or better) for determining the significance of Project traffic levels.

Determination of Significant Impacts (Intersections). A project is considered to have an individually significant impact on the operation of an intersection if the project related increase in V/C ratio equals or exceeds applicable thresholds (refer to Appendix G of this EIR).

Table 5.11-9 summarizes the significant impact criteria for the study intersections according to the Los Angeles County Department of Public Works Traffic Impact Analysis Report Guidelines.

Determination of Significant Impacts (State Highways). Based on the Caltrans Guide for the Preparation of Traffic Impact Studies, "Caltrans endeavors to maintain a target LOS at the transition between LOS 'C' and LOS 'D' on State Highway Facilities, however, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the target LOS. If an existing State highway facility is operating at less than the appropriate target LOS, the existing LOS should be maintained."

The study freeways and state highway are also within the jurisdiction of Los Angeles County and are also subject to County significant impact thresholds.

Determination of Significant Impacts (County Roadways). According to the Los Angeles County Traffic Impact Analysis Report Guidelines, a project is deemed to have a significant impact on roadways when it adds set percentages of traffic based on the LOS of the pre-project conditions (refer to Appendix G of this EIR).

Table 5.11-10 summarizes the significant impact criteria for the study roadways according to the Los Angeles County Department of Public Works Traffic Impact Analysis Report Guidelines.

5.11.3.2 Significance Criteria

The following significance criteria were developed in consultation with County of Los Angeles staff for use in the traffic impact assessment of the proposed Project:

- Does the project contain 25 dwelling units or more and is it located in an area with known congestion problems (roadway or intersections)?
- Will the project result in any hazardous traffic conditions?
- Will the project result in parking problems with a subsequent impact on traffic conditions?
- Will inadequate access during an emergency (other than fire hazards) result in problems for emergency vehicles or residents/employees in the area?
- Will the CMP Transportation Impact Analysis thresholds of 50 peak hour vehicles added by project traffic to a CMP highway system intersection or 150 peak-hour trips added by project traffic to a mainline freeway link be exceeded?
- Would the project conflict with adopted policies, plans, or program supporting alternative transportation (e.g., bus, turnouts, bicycle racks)?
- Would project construction equipment traffic have a detrimental effect on the existing pavement of 170th Street West?

Since the proposed Project is not considered a residential land use containing dwelling units nor is it within an area with known congestion problems, the first criteria listed above is not pertinent and is not considered further in this study.

5.11.3.3 Impact Analysis

5.11.3.3.1 Criteria 1: Will the project result in any hazardous traffic conditions?

Construction.

Facility Site. The traffic impact study has determined that the proposed Project will not contribute a significant impact at the study area intersections during the construction phases of the proposed Project. Table 5.11-11 shows the intersection LOS and average delay results of Future (2013) No Project conditions used as baseline in evaluating Project Construction impacts. Table 5.11-12 shows the intersection LOS and average delay results during the Future (2013) Project Construction Conditions. All intersections are anticipated to operate at acceptable levels of service (LOS C or better) during the project construction phase.

The traffic impact study determined that the proposed Project would not contribute a significant impact at the study area roadway segments during the construction phase of the proposed Project. Table 5.11-13 shows the roadway LOS results of Future (2013) No Project conditions used as baseline in evaluating Project Construction impacts. Table 5.11-14 shows the roadway LOS results during the Future (2013) Project Construction Conditions. All roadway segments are anticipated to operate at acceptable levels of service (LOS C or better) during the project construction phase.

The addition of Project traffic would not significantly impact any of the study area intersections during the construction phase. The study area intersections have sufficient capacity to handle short term peak Project construction traffic.

Potential Impact 5.11-1: Impacts on SR-138 and 170th Street West at Utility Crossings.

***Project Utility Roadway Crossings*.** Construction of the proposed AV Solar Ranch One facility includes the following utility crossings of roadways: 1) water supply pipeline under SR-138; 2) 34.5-kV electric line over SR-138; and 3) 34.5-kV lines across 170th Street West from the east side to the proposed on-site substation on the west side.

The proposed water line crossing of SR-138 would be performed by horizontal directional drilling or jack-and-bore under the two lane SR-138. Installation of the water pipeline relative to the roadway is depicted on Figure 4.4-16. It is currently expected that the installation under SR-138 would not require any traffic control or create delays as traffic could continue in both directions unimpeded. The water pipeline crossing of SR-138 would require an Encroachment Permit from Caltrans and compliance with the terms of the Encroachment Permit would avoid any potentially significant traffic impacts.

The construction envelope to erect the 34.5-kV transmission lines across SR-138 and 170th Street West may require work on public road rights-of-way. If there is insufficient area in which to work, the construction may encroach beyond the roadway shoulders into the traveled roadway.

Should erection of the poles require work near or on the roadway, construction work warning signs would be placed in advance according to the California Manual on Uniform Traffic Control Devices (Caltrans 2010) (Part 6 – Temporary Traffic Control). Additionally, flagmen would be used as required during construction to ensure traffic safety and maximize traffic flow. During the planned 34.5-kV transmission line construction periods, it is expected that traffic flow may need to be intermittently restricted to allow stringing and tensioning of the transmission lines across the roadways in a safe manner. Transmission line crossings of SR-138 and 170th Street West would require Encroachment Permits from Caltrans and LACDPW, respectively. This impact is considered to be potentially significant. With

implementation of Mitigation Measure 5.11-1 in Section 5.11.5 (Mitigation Measures), this potentially significant traffic impact would be less than significant.

Off-site Transmission Line. Construction of the proposed 230-kV transmission line within the 170th Street West public road ROW and adjacent private lands is expected to take place over a period of 4 months. The proposed transmission line is expected to require a total of approximately 46 poles. The proposed off-site portion of the transmission line route and pole locations are located approximately 5 feet inside of the edge of the public road ROW on the east side of 170th Street West in Los Angeles County. In Kern County the transmission line would be located within the public road ROW or on adjacent private land. Pole holes would be approximately 6 to 8 feet in diameter, 20 to 30 feet deep, and poles would be set in poured concrete foundations. Structures and conductor support hardware would be assembled at each pole location.

The construction envelope to erect the transmission poles would require work on public ROW and/or adjacent private properties. If there is insufficient area, the construction may encroach beyond the roadway shoulders into the traveled way requiring limited closures of roadway segments in the construction zones causing short-duration traffic impacts.

Potential Impact 5.11-2: Impacts on 170th Street West and Cross Streets during the installation of off-site 230-kV transmission line.

The construction envelope to erect the transmission poles would require work on public ROW and/or adjacent private properties. If there is insufficient area in which to work, the construction may encroach beyond the roadway shoulders into the traveled roadway requiring limited closures of roadway segments in the construction zones causing short-duration traffic impacts.

Should erection of the poles require work near or on the roadway, construction work warning signs would be placed in advance according to the California Manual on Uniform Traffic Control Devices (Caltrans 2010) (Part 6 – Temporary Traffic Control). Additionally, flagmen would be used as required during construction to ensure traffic safety and uninterrupted flow. During the planned transmission line construction period of approximately 4 months, it is expected that traffic flow could be intermittently restricted to one paved lane (plus use of the adjacent shoulder where practical and safe) at each applicable pole location for 1–2 days while that pole is being installed.

Additionally, the proposed Project includes two overhead 230-kV transmission line crossings of 170th Street West in Los Angeles County and two overhead crossings in Kern County which would require a short term closure (several hours maximum) of the entire roadway while the transmission lines (conductors) were tensioned and elevated to a safe distance above the roadway. Similarly, the 230-kV transmission line route crosses multiple County

roads in Los Angeles County on the east side of 170th Street West (West Avenue C, West Avenue B, West Avenue A12, West Avenue A8, Avenue A4, West Avenue A [County Line]), and then Kern County (west side of 170th Street West at Kingbird Avenue; then east side of 170th Street West at Gaskell Road, Patterson Road, and Astoria/Holiday Avenue). In addition, the transmission line will need to cross 170th Street West (from east to west) north of Astoria/Holiday Avenue in order to connect to SCE's planned Whirlwind Substation.

These roadway crossing impacts are considered to be potentially significant relative to creation of hazards to motorists. Roadway crossings would require encroachment permits from the LACDPW and the Kern County Resource Management Agency, Roads Division for roads within their respective jurisdictions. With implementation of Mitigation Measure 5.11-1 in Section 5.11.5 (Mitigation Measures), this potentially significant traffic impact would be less than significant.

Operation.

Facility Site. The traffic impact study has determined that the proposed Project would not contribute a significant impact at the study area intersections during the operation phases of the proposed Project. Table 5.11-15 shows the intersection LOS and average delay results of Future (2014) No Project conditions used as baseline in evaluating Project Operations impacts. Table 5.11-16 shows the intersection LOS and average delay results during the Future (2014) Project Operation Conditions. All intersections are anticipated to operate at acceptable levels of service (LOS B or better) during the Project operation phase.

The traffic impact study also determined that the proposed Project would not contribute a significant impact on study area roadway segments during the operation phase of the proposed Project. Table 5.11-17 shows the roadway LOS results of Future (2014) No Project conditions used as baseline in evaluating Project Operation impacts. Table 5.11-18 shows LOS results during the Future (2014) Project Operation Conditions. All roadway segments are anticipated to operate at acceptable levels of service (LOS B or better) during the Project operation phase.

The addition of Project operation traffic (16 workers and minimal truck deliveries) during the operation phase of the proposed Project would not significantly impact any roadway segments. The roadway segments have sufficient capacities to handle peak project operation traffic. Delivery truck ingress and egress to/from the site would not be an issue as the quantity of delivery trucks would be minimal. Potential impacts would be less than significant.

Off-site Transmission Line. Operational phase activities for the off-site transmission line would consist primarily of annual visual inspections and periodic washing of insulators and vegetation management at pole locations on an as-needed basis. These activities would be

infrequent and transient in nature, and would occur within the public road ROW or on private lands outside of the traveled roadway. In the case where the transmission line requires maintenance or repair involving equipment and use of the public road ROW, traffic control measures (in accordance with Mitigation Measure 5.11-1 in Section 5.11.5, Mitigation Measures) would be implemented to ensure public and worker safety. In addition, maintenance activities would be performed in accordance with County encroachment permit conditions, as applicable. Potential impacts would be less than significant.

5.11.3.3.2 Criteria 2: Will the project result in parking problems with a subsequent impact on traffic conditions?

Construction.

Facility Site. The proposed Project is not anticipated to generate any parking issues relative to existing traffic conditions. All equipment and construction worker, truck delivery and on-site construction vehicles would be contained within designated parking and staging areas on the 2,100-acre site, thus no parking issues would arise. Potential impacts would be less than significant.

Off-site Transmission Line. It is anticipated that during the installation of the transmission poles, all vehicles as well as equipment would be operated and/or parked in areas removed a safe distance from the travelled roadway on 170th Street West (i.e., within the unpaved construction/installation work zones in the public road ROW or adjacent private land for the portion in Kern County). The public road ROW along 170th Street West is generally not currently used for public vehicle parking, thus parking related issues would not be expected to occur during the short-term and transient transmission line construction along this street. Potential impacts would be short term and less than significant.

Operation.

Facility Site. The proposed Project is not anticipated to generate any parking issues onto existing traffic conditions during the operational phase. As shown is Table 5.11-7, a total of 32 daily trips would be generated with 16 trips entering the site during the a.m. peak hour and 16 vehicles exiting the site during the p.m. peak hour. The proposed Project includes an on-site parking area for employees and visitors. All vehicles would be contained within the 2,100-acre site, and no parking issues would arise. Impacts would be less than significant.

Off-site Transmission Line. As discussed previously, operational-phase activities for the off-site transmission line would consist primarily of annual visual inspections and periodic washing of insulators and vegetation management at pole locations and access pathways, as applicable, on an as-needed basis. The proposed transmission line route is located near the outside edge of the public road ROW or on adjacent private lands away from the travelled

roadway. The public road ROW along 170th Street West is generally not used for public vehicle parking; thus, parking-related issues are not anticipated during the operations phase for the transmission line. Should the transmission line require maintenance or repair involving equipment and use of the public road ROW, traffic control measures (in accordance with Mitigation Measure 5.11-1 in Section 5.11.5, Mitigation Measures) would be utilized to ensure public and worker safety. In addition, maintenance activities would be performed in accordance with County encroachment permit conditions, as applicable. Potential impacts would be less than significant.

5.11.3.3.3 Criteria 3: Will inadequate access during an emergency (other than fire hazards) result in problems for emergency vehicles or residents/employees in the area?

***Construction*.**

***Facility Site*.** The traffic generated by construction at the proposed Project site is not anticipated to create any access issues for emergency vehicles or residents/employees in the area during an emergency. Access along SR-138 and 170th Street West, including the Project site entrance, would be kept clear of obstructions and all safety requirements and safety monitoring on-site would be regulated according to standards set by the construction contractor. The proposed facility would have an emergency response plan which would provide set procedures for employees to follow in the event of an on-site emergency. Potential impacts would be less than significant.

Potential Impact 5.11-3: Impacts on SR-138 and 170th Street West at Utility Crossings.

***Project Utility Roadway Crossings*.** As discussed above under Potential Impact 5.11-1, construction of the proposed AV Solar Ranch One facility includes the following utility crossings of roadways: 1) water supply pipeline under SR-138; 2) 34.5-kV electric line over SR-138; and 3) 34.5-kV lines across 170th Street West from the east side to the proposed on-site substation on the west side. The water supply pipeline installation is not expected to have the potential to create access issues for emergency vehicles or residents in the area since it would not require any traffic flow restrictions on SR-138 during the proposed installation procedure.

Should erection of the 34.5-kV poles require work near or on the roadways, construction work warning signs would be placed in advance according to the California Manual on Uniform Traffic Control Devices (Caltrans 2010) (Part 6 – Temporary Traffic Control). Additionally, flagmen would be used as required during construction to ensure traffic safety and uninterrupted flow. During the planned 34.5-kV transmission line construction periods, it is expected that traffic flow may need to be intermittently restricted to allow stringing and tensioning of the transmission lines across the roadways in a safe manner. Transmission line

crossings of SR-138 and 170th Street West would require Encroachment Permits from Caltrans and LACDPW, respectively. This impact is considered to be potentially significant with respect to the potential creation of short-term access limitations on affected roadway segments. With implementation of Mitigation Measure 5.11-1 in Section 5.11.5 (Mitigation Measures), this potentially significant traffic impact would be less than significant.

Off-site Transmission Line. Temporary, short-duration transmission line construction activities in the public road ROW along 170th Street West, as applicable, have the potential to create access issues for emergency vehicles and/or the few residents that live along 170th Street West.

Potential Impact 5.11-4: Access impacts along 170th Street West to emergency vehicles and residents/employees during the installation or maintenance of transmission poles.

During installation of transmission poles and lines, emergency access along 170th Street West or to/from residences adjacent to the temporary transmission line work zones along 170th Street West could be temporarily impacted (i.e., 1–2 days maximum at any one location) by construction activities.

As discussed under Potential Impact 5.11-3 above, the proposed Project includes two overhead 230-kV transmission line crossings of 170th Street West in Los Angeles County and two in Kern County as well as crossings of multiple other County roads that are crossed by the proposed transmission line route along 170th Street West in Los Angeles and Kern counties. The roadway crossings would likely require short term roadway closures (several hours maximum each) while the transmission lines (conductors) were tensioned and elevated to a safe distance above the roadways at each crossing.

These potential impacts to access along 170th Street West and applicable cross streets can be minimized through the implementation of worksite traffic control measures by the construction contractor.

With implementation of Mitigation Measure 5.11-1 in Section 5.11.5 (Mitigation Measures), this potentially significant impact would be reduced to a less than significant level.

Operation.

Facility Site. The proposed Project is not anticipated to create any access issues for emergency vehicles or residents/employees in the area during an emergency during Project operation. All safety requirements and safety monitoring on-site would be regulated according to standards by the Facility Operator. The proposed facility would have an emergency response plan which would provide set procedures for employees to follow in the event of an on-site emergency. Potential impacts would be less than significant.

Off-site Transmission Line. Operational phase activities for the off-site transmission line would occur within the public road ROW or on private lands outside of the traveled roadway. Should the transmission line require maintenance or repair involving equipment and use of the public road ROW, traffic control measures (in accordance with Mitigation Measure 5.11-1 in Section 5.11.5, Mitigation Measures) would be utilized to ensure that emergency access and traffic flow are maintained as well as public and worker safety. In addition, maintenance activities would be performed in accordance with County encroachment permit conditions, as applicable. As a result, operation of the transmission line would not affect emergency access along 170th Street West or pertinent cross streets, and potential impacts would be less than significant.

5.11.3.3.4 Criteria 4: Will the congestion management program (CMP) Transportation Impact Analysis thresholds of 50 peak hour vehicles added by project traffic to a CMP highway system intersection or 150 peak hour trips added by project traffic to a mainline freeway link be exceeded?

Construction.

Facility Site. The CMP was created statewide as a result of Proposition 111 that included a gas tax increase to fund both regional and local transportation improvements. The CMP implementing arm is usually the local congestion management agency and in this region the Los Angeles County Metropolitan Transportation Authority (LACMTA) is the implementing agency. The CMP for Los Angeles County requires that the traffic impact of individual development projects of potentially regional significance will be analyzed for CMP traffic impacts. A specific system of arterial roadways plus all freeways comprise the CMP system. A total of 161 intersections had been identified for monitoring throughout the Los Angeles County CMP system.

Two CMP freeway systems currently provide regional freeway access to the Project site. The I-5 is a north/south oriented facility located approximately 22 miles west of the Project site. The SR-14 is a north/south regional facility approximately 15 miles to the east of the Project site. The nearest CMP freeway monitoring locations at these two freeways are located further downstream of the Project site. In addition, the results of the detailed freeway segment traffic impact analysis (refer to Table 5.11-14) conducted for the above freeways are in compliance with CMP traffic analysis guidelines. Therefore, no further CMP freeway analysis is warranted beyond those that are presented in the roadway segment analysis.

Based on the review of the Los Angeles CMP intersection list it was determined that none of the Project study intersections are identified as CMP monitoring intersections; therefore, no further analysis is needed for CMP intersections. Also, the addition of project traffic would not significantly impact any of the CMP freeway monitoring locations under the construction

development scenarios. The CMP freeway segments have sufficient capacities to handle short term peak project construction traffic. Potential impacts would be less than significant.

Off-site Transmission Line. Mainline freeway links or CMP intersections would not be impacted by the installation of the proposed off-site transmission line. The construction workforce for the off-site transmission line would be approximately 21 workers and is included in the analysis of construction phase traffic impacts at CMP intersections for the AV Solar Ranch One Facility.

Operation.

Facility Site. As shown in Table 5.11-7, minimal traffic contribution would occur from the workforce (16) and limited truck deliveries during the operations phase for the proposed Project. Thus, no CMP intersections or mainline freeway links would be impacted by the proposed Project operation conditions.

Off-site Transmission Line. Operational phase activities for the off-site transmission line would consist primarily of annual visual inspections and periodic washing of insulators and vegetation management at pole locations and access pathways, as applicable, on an as-needed basis. These activities would be infrequent and transient in nature, and would not contribute to traffic impacts at CMP intersections or mainline freeway links.

5.11.3.3.5 Criteria 5: Would the project conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus, turnouts, bicycle racks)?

Construction and Operation.

Facility Site. Currently, there are no alternative modes of transportation, such as bus, turnouts or bicycle racks, available near the proposed Project site. As such, no potential conflicts would arise with Los Angeles County or Kern County adopted policies, plans or programs that support alternative transportation. No conflicts would occur associated with construction or operation of the proposed Project.

Off-site Transmission Line. There are no alternative modes of transportation available in the Project area for the off-site transmission line. Adopted policies, plans or programs for alternative transportation would not be affected by the installation or operation of the proposed transmission line.

5.11.3.3.6 Criteria 6: Would project construction equipment traffic have a detrimental effect on the existing pavement of 170th Street West?

Facility Site and Off-site Transmission Line. Project construction equipment traffic, including heavy truck traffic and other construction equipment, would travel and operate on 170th Street West both north and south of SR-138 during the planned 38-month construction period. The existing pavement on 170th Street West is 2 inches of asphalt on 3 inches of soil mix according to the LACDPW. Based on a preliminary visual inspection by a URS traffic engineer in December 2008 and consideration of the structural design of the roadway pavement, the portions of 170th Street West to be utilized for Project-related traffic are considered adequate to support Project construction equipment traffic. However, Project-related construction equipment traffic could increase wear and tear and/or damage to the existing pavement thereby increasing County maintenance costs for upkeep and repair or reconstruction of 170th Street West. Project impacts are considered to be potentially significant absent mitigation. Examples of possible Project construction-related traffic damage to the roadway include stress cracks, creation of potholes, and/or breaking of pavement at the roadway edges at traffic ingress and egress points. These types of potential roadway damage could require repairs ranging from filling of potholes to repaving roadway sections, as applicable. With implementation of Mitigation Measure 5.11-2, this potentially significant impact would be less than significant.

5.11.3.3.6 Indirect Impacts.

Facility Site. The proposed Project on the approximately 2,100-acre site would involve development on several potential County road easements, which has the potential to affect future circulation patterns in the Project vicinity. None of the potential future road easements are currently used for access by adjacent properties. The Project would require uninterrupted connectivity between portions of the site property that are integral to implementation of the Project. The Project would have no impact to existing or planned roads along the property boundaries, which would remain or be developed as roads accordingly. However, the Project would require certain areas within the Project site area to remain uninterrupted.

As a result, the Project is undergoing a road vacation process of a portion of 160th Street West located between West Avenue C-8 and West Avenue C. This segment of 160th Street West traverses the Project site, and is currently unaligned and unpaved. Areas adjacent to and in the vicinity of the eastern Project area consist of open space and agricultural uses, and vacating the on-site segment of 160th Street west would not preclude access to residences or other existing uses in the vicinity of the Project area. Multiple roads, such as 155th Street West, 150th Street West, 170th Street West, and several unnamed existing roads currently provide alternative, if not more established access capabilities compared to 160th Street West. For this reason, potential future development(s) in the vicinity would still have multiple

means of accessing this area, and would not be anticipated to be adversely affected by the vacation of the portion of 160th Street West within the Project site.

The western Project area (west of 170th Street West) is immediately adjacent to open space and agricultural fields. A few residential uses (i.e., fewer than 5) are located within the general vicinity, which, based on a review of the existing road network for proximity and ease of access, would be most feasibly served by the north-south oriented roads—190th Street West (closest paved major road to the residences), 180th Street West, 185th Street West, and multiple existing unnamed roads; and the east-west oriented roads—West Avenue C (segment west of the Project site), West Avenue B-8, West Avenue B, and multiple existing unnamed roads.

The Project requests that no ROW be reserved by the County within the western Project property boundaries that are associated with potential future roads where none currently exist. These potential future roads consist of: West Avenue C between 170th Street West and 175th Street West; the extension of 175th Street West between West Avenue C; and the extension of West Avenue B-8, and West Avenue C-8 between 170th Street West and 175th Street West. These requests, which all pertain to areas within the Project site, would not affect the existing access routes of current uses in the Project vicinity. Additionally, based on the redundancy allowed by the existing multiple north-south and east-west oriented roads to the west of the Project area, solar PV development on the potential roads in the Project site would not be anticipated to affect the access capabilities of future developments in the general Project area.

There are no other anticipated indirect traffic impacts associated with implementation of the proposed AV Solar Ranch One solar generating facility.

Off-site Transmission Line. No indirect traffic and access impacts would be expected to occur associated with construction or operation of the proposed off-site transmission line.

5.11.4 Cumulative Impacts

There are several other proposed projects that have the potential to result in cumulative traffic impacts with the proposed Project (refer to Section 4.6).

For the AV Solar Ranch One Project traffic analysis, it was conservatively assumed that to account for ambient traffic growth and cumulative project traffic, an ambient traffic growth of four percent per year was used to develop future baseline cumulative conditions from existing intersection traffic count data. This traffic growth assumption was based on the growth forecast for the North County Area from the Los Angeles County CMP. The traffic study for the AV Solar Ranch One Project built these assumptions into the Project-specific analysis (see Tables 5.11-10 through 5.11-18) in order to account for potential future growth

and traffic conditions through the end of the construction period. Since there were generally limited or no project specific cumulative trip generation numbers available for the cumulative projects presented in Section 4.6, the four percent traffic growth per year traffic adjustment assumption is considered to be conservative and sufficient to account for the trip generation potential of the other projects.

Following Project construction, the very low trip generation associated with the Project's operations workforce of 16 and occasional service/delivery trips would not result in significant cumulative traffic impacts in the Project study area.

Impacts to road wear and tear and maintenance requirements for 170th Street West from the Project construction equipment traffic for the approximately 38-month construction schedule when considered together with other existing and proposed traffic from other pending projects that may utilize 170th Street West (e.g., north of SR-138) could result in cumulative impacts on the roadway pavement. Mitigation Measure 5.11-2 (Document Pre-and Post-Project Construction Pavement Condition of 170th Street West and Pay Fair Share) as well as separate County road repair mitigation requirements for other projects, as applicable, would reduce the potential incremental impacts of the Proposed project damage to the roadway to less than significant from a cumulative perspective.

5.11.5 Mitigation Measures

5.11.5.1 Construction/Operations Traffic

The traffic analysis indicates that there are no long-term potentially significant operational phase traffic impacts associated with the proposed Project. All study area intersections and roadway segments would operate at acceptable levels or service (LOS C or better).

Additionally, the traffic analysis indicates that there are no potentially significant construction traffic related impacts identified for construction of the AV Solar Ranch One Facility with the exception of possible Project construction equipment traffic damage to the existing pavement on 170th Street West. Mitigation Measure 5.11-2 shall be implemented to mitigate this impact to a level of less than significant.

5.11.5.2 Transmission Roadway Encroachments

As discussed in Sections 5.11.3.3.1 and 5.11.3.3.3, potentially significant traffic and access related impacts have been identified for the construction phase of the proposed AV Solar Ranch One facility and the off-site 230-kV transmission line relative to potential traffic access and hazards associated with overhead 34.5-kV transmission construction along and/or across SR-138, 170th Street West, and multiple County roads crossed by the 230-kV transmission line route along 170th Street West.

The following mitigation measure is proposed to reduce potential impacts associated with construction of overhead 34.5-kV crossings of SR-138 and 170th Street West and overhead 230-kV crossings of existing and/or designated cross streets (in Los Angeles County: West Avenue C, West Avenue B, West Avenue A12, West Avenue A8, Avenue A4, West Avenue A [County line]; and in Kern County: Kingbird Avenue, Gaskell Road, Patterson Road, and Astoria/Holiday Avenue) as well as the off-site transmission line in the public road ROW along 170th Street West in northern Los Angeles and southern Kern Counties. The mitigation measure provided herein will not require any permanent improvements.

Mitigation Measure (MM) 5.11-1: Provide Adequate Worksite Traffic Control. Prior to any construction activities and/or issuance of required encroachment permits from Los Angeles and Kern counties, the Applicant shall prepare worksite traffic control plans for review and approval from the LACDPW and the Kern County Resource Management Agency, Roads Department. The plans shall include: 1) the location and usage of appropriate construction work warning signs that shall be placed in accordance with the California Manual on Uniform Traffic Control Devises (Caltrans 2010); 2) proper merging taper and/or shifting lane schematics; and 3) adequate work area and buffer zone designation as well as proper location and conduct of flagmen and the traffic management supervisor at the installation worksite area. The Project worksite traffic control plans shall be coordinated with driver and worker safety in mind. Where the observed speed limit on affected roadways is 55 MPH or more, the plans shall incorporate and implement the following minimum standard requirements per the Work Area Traffic Control Handbook (WATCH):

- A Type C flashing arrow pane shall be used for each closed lane.
- The minimum height for traffic cones shall be 28 inches.
- A minimum of three advance warning signs shall be posted.
- Consideration of advanced safety enhancement measures shall be taken into account for workers in the work zones.

The above safety and traffic control measures identified in the traffic control plans shall also be implemented at pole installation sites within the public road ROW and/or roadway crossings at a minimum.

Additionally, the County, including the LACFD Fire Stations 78, 112, and 140 shall be notified at least three days in advance of any street closures that may affect fire and/or paramedic responses in the area. Applicant shall provide alternate route (detour) plans to the County, including three sets to the LACFD, with a tentative schedule of planned closures, prior to the beginning of construction.

MM 5.11-2: Document Pre-and Post-Project Construction Pavement Condition of 170th Street West and Pay Fair Share. Prior to issuance of a grading permit, Applicant shall document and submit all required information and/or material pertaining to the pavement conditions of 170th Street West including the formula for calculating the Project's fair share of any repair and/or reconstruction of 170th Street West to the satisfaction of the LACDPW. Applicant shall reimburse the County of Los Angeles for the cost of any repairs and/or reconstruction of 170th Street West attributable to the Project as agreed to by the LACDPW. The timing of any necessary repairs and/or reconstruction of 170th Street West and the required payment by Applicant shall be determined by LACDPW.

5.11.6 Level of Significance after Mitigation

The proposed Project would not result in any potentially significant long-term operational phase traffic impacts.

With implementation of Mitigation Measures 5.11-1 and 5.11-2 presented above, potential project-related traffic impacts during construction of the AV Solar Ranch One facility (including 34.5-kV lines) and the off-site 230-kV transmission line would be reduced to less than significant levels.

5.11.7 References

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Los Angeles County Metropolitan Transportation Authority. 2004. Congestion Management Program for Los Angeles County.

Transportation Research Board. 2000. Highway Capacity Manual.

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TABLE 5.11-1
LEVEL OF SERVICE DESCRIPTIONS

Level of Service	Description of Operation	Range of V/C Ratios[1]
A	Describes primarily free-flow conditions at average travel speeds. Vehicles are seldom impeded in their ability to maneuver in the traffic stream. Delays at intersection are minimal.	0.00–0.60
B	Represents reasonably unimpeded operations at average travel speed. The ability to maneuver in the traffic stream is slightly restricted and delays are not bothersome.	0.61–0.70
C	Represents stable operations, however, ability to change lanes and maneuver may be more restricted than LOS B and longer queues are experienced at intersections.	0.71–0.80
D	Congestion occurs and a small change in volumes increases delays substantially.	0.81–0.90
E	Severe congestion occurs with extensive delays and low travel speeds occur.	0.91–1.00
F	Characterizes arterial flow at extremely low speeds and intersection congestion with high delays and traffic queuing.	>1.00

[1] V/C = volume to capacity.

TABLE 5.11-2
STUDY INTERSECTIONS

ID	Intersection	Jurisdiction
1	State Route 14 NB Ramps/State Route 138	Los Angeles County
2	State Route 14 SB Ramps/State Route 138	Los Angeles County
3	90th Street West/State Route 138	Los Angeles County
4	110th Street West/State Route 138	Los Angeles County
5	160th Street West/State Route 138	Los Angeles County
6	170th Street West/State Route 138	Los Angeles County
7	La Petite Avenue/State Route 138	Los Angeles County
8	270th Street West/State Route 138	Los Angeles County
9	Ridge Road/State Route 138	Los Angeles County

Note: All study intersections are currently unsignalized.

TABLE 5.11-3
STUDY ROADWAY SEGMENTS

ID	Roadway	Segment
1	I-5	North of SR-138
2	SR-14	South of SR-138
3	SR-14	North of SR-138
4	SR-138	East of 170th Street West
5	170th Street West	North of SR-138
6	170th Street West	South of SR-138

TABLE 5.11-4
PEAK HOUR INTERSECTION LEVEL OF SERVICE RESULTS
EXISTING CONDITIONS[1]

Intersection	A.M. Peak Hour		P.M. Peak Hour	
	LOS[2]	Average Delay (Seconds/Vehicle)	LOS[2]	Average Delay (Seconds/Vehicle)
State Route 14 NB Ramps/State Route 138	A	9.1	A	9.6
State Route 14 SB Ramps/State Route 138	A	9.4	A	9.4
90th Street West/State Route 138	B	10.5	B	11.1
110th Street West/State Route 138	A	10.0	B	10.1
160th Street West/State Route 138	A	0.0	A	0.0
170th Street West/State Route 138	A	9.7	B	10.3
La Petite Avenue/State Route 138	A	9.2	A	9.4
270th Street West/State Route 138	A	0.0	A	7.4
Ridge Road/State Route 138	A	7.4	B	10.3

1 Source: URS, 2010 (Traffic Impact Analysis Report; see Appendix G of EIR).

2 LOS = Level of service.

Notes:
Unsignalized intersections – LOS calculated in delay (seconds) not V/C.
All intersections are unsignalized two-way stop controlled. SR-138 is the major roadway.
NB = northbound; SB = southbound.

TABLE 5.11-5
ROADWAY SEGMENT LEVEL OF SERVICE RESULTS
EXISTING CONDITIONS

Roadway	Segment	Cross-section Classification	Time Period	Traffic Volume	Level of Service (A.M./P.M.)
I-5	North of SR-138	Freeway	Daily	71,000[1]	B/B[2,3]
SR-14	South of SR-138	Freeway	Daily	37,500[1]	B/B[2,3]
SR-14	North of SR-138	Freeway	Daily	36,000[1]	B/B[2,3]
SR-138	East of 170th Street West	2-lane Collector	a.m./p.m.	151/210[4]	B/B[4]
170th Street West	North of SR-138	2-lane Collector	a.m./p.m.	19/23[4]	A/A[4]
170th Street West	South of SR-138	2-lane Collector	a.m./p.m.	6/8[2]	A/A[4]

[1] Average Daily Traffic (ADT).

[2] ADT volumes were converted to a.m./p.m. peak hours volumes using K and D factors obtained from Caltrans Traffic Data Branch website. http:/traffic-counts.dot.ca.gov.

[3] Peak Hour LOS.

[4] Peak Hour Volume.

TABLE 5.11-6
PEAK PROJECT CONSTRUCTION TRIP GENERATION
(8-10 MW SCENARIO)

Category	Actual Number of Vehicles	Daily Trips (One-way Trips)	A.M. Peak-hour Trips (7:00 A.M. – 9:00 A.M.)		P.M. Peak-hour Trips (4:00 P.M. – 6:00 P.M.)		Non-peak-hour Trips	
			In	Out	In	Out	In	Out
On-site Management and Staff (Individual Vehicles)[1]	46	92	46	0	0	46	0	0
Construction and Manufacturing Workers[1]	407	814	407	0	0	407	0	0
Construction Deliveries[2,3]	15 (45 PCE)[2,3]	90[2,3]	14	9	9	14	22	22
Total Trips	498	996	467	9	9	467	22	22

[1] On-site Management and Staff will use 46 individual vehicles (92 daily round trips) during Peak Project Construction Month in Year 2013. Based on the information provided by the project proponent, there will be 407 construction and manufacturing workers (i.e., total of 453 management/staff and construction workers). It is assumed conservatively that all the workers and staff trips will enter and exit the site during morning and evening peak-hours, respectively.

[2] Construction Deliveries were converted to Passenger Car Equivalent (PCE), assuming 1 Truck equal to 3 Passenger Cars, 15 Trucks = 45 PCE.

[3] Approximately 30 percent of the Construction Deliveries are assumed to enter the site during the morning peak-hour and approximately 20 percent of the Construction Deliveries are assumed to exit the site during the morning peak hours. Approximately 20 percent of the Construction Deliveries are assumed to enter the site during the evening peak hours and approximately 30 percent of the Construction Deliveries are assumed to exit the site during the evening peak hour. The remaining 50 percent of the truck trips will operate during the off-peak hours of the day.

TABLE 5.11-7
PEAK PROJECT OPERATIONS TRIP GENERATION

		A.M. Peak-hour Trips		P.M. Peak-hour Trips	
Description	Daily Round Trips	In	Out	In	Out
Operational Workforce[1]	32	16	0	0	16
Total Trips	32	16	0	0	16

[1] Approximately 32 daily round trips for 16 workers are expected during the operations period.

TABLE 5.11-8
PROJECT TRIP DISTRIBUTION ASSUMPTIONS

Land Use Trip Category	To SR-14 South[1] (Percent)	To SR-14 North[1] (Percent)	To SR-138 West (Percent)
Construction Worker	70	5	25
All Construction Delivery	100	0	0
All Operations and Maintenance Trips	90	0	10

[1] Via SR-138.

TABLE 5.11-9
SIGNIFICANT IMPACT THRESHOLD FOR INTERSECTIONS[1]

Pre-project		
Level of Service	V/C[2]	Project V/C Increase
C	0.71 to 0.80	0.04 or more
D	0.81 to 0.90	0.02 or more
E/F	0.91 or more	0.01 or more

1 Source: Traffic Impact Analysis Report Guidelines, Los Angeles County Department of Public Works. 1987.

2 V/C = volume to capacity ratio.

TABLE 5.11-10
SIGNIFICANT IMPACT THRESHOLD FOR TWO-LANE ROADWAYS

		Percentage Increase in Passenger Cars Per Hour (PCPH) by Project		
		Pre-project LOS		
Directional Split	Total Capacity (PCPH)	C	D	E/F
50/50	2,800	4	2	1
60/40	2,650	4	2	1
70/30	2,500	4	2	1
80/20	2,300	4	2	1
90/10	2,100	4	2	1
100/0	2,000	4	2	1

Source: Traffic Impact Analysis Report Guidelines, Los Angeles County Department of Public Works.

TABLE 5.11-11
PEAK HOUR INTERSECTION LEVEL OF SERVICE RESULTS
YEAR 2013 NO PROJECT CONDITIONS[1]

Intersection	A.M. Peak Hour		P.M. Peak Hour	
	LOS	Average Delay (Seconds/Vehicle)	LOS	Average Delay (Seconds/Vehicle)
State Route 14 NB Ramps/State Route 138	A	9.3	A	9.8
State Route 14 SB Ramps/State Route 138	A	9.6	A	9.6
90th Street West/State Route 138	B	11.0	B	11.7
110th Street West/State Route 138	B	10.2	B	10.4
160th Street West/State Route 138	A	9.7	B	40.0
170th Street West/State Route 138	A	10.0	B	10.6
La Petite Avenue/State Route 138	A	9.3	A	9.6
270th Street West/State Route 138	A	9.3	A	7.4
Ridge Road/State Route 138	A	7.4	B	10.6

Source: URS, 2010.
Notes:
Unsignalized intersections – LOS calculated in delay (seconds) not V/C.
All intersections are unsignalized two-way stop controlled. SR-138 is the major roadway.

TABLE 5.11-12
PEAK HOUR INTERSECTION LEVEL OF SERVICE RESULTS FUTURE (2013)
8-10 MW PROJECT CONSTRUCTION CONDITIONS

	A.M. Peak Hour		P.M. Peak Hour	
Intersection	LOS	Average Delay (Seconds/Vehicle)	LOS	Average Delay (Seconds/Vehicle)
State Route 14 NB Ramps/State Route 138	B	13.5	B	10.0
State Route 14 SB Ramps/State Route 138	B	12.7	B	10.2
90th Street West/State Route 138	C	18.0	C	17.8
110th Street West/State Route 138	B	14.3	B	14.6
160th Street West/State Route 138	B	13.7	B	13.7
170th Street West/State Route 138 (North Only)	C	17.0	C	22.0
170th Street West/State Route 138 (South Only)	C	15.1	C	16.6
La Petite Avenue/State Route 138	A	9.7	B	10.4
270th Street West/State Route 138	A	9.8	A	7.7
Ridge Road/State Route 138	A	7.7	B	11.6

Source: URS, 2010.
Notes:
Unsignalized intersections – LOS calculated in delay (seconds) not V/C.
All intersections are unsignalized two-way stop controlled. SR-138 is the major roadway.

TABLE 5.11-13
ROADWAY SEGMENT LEVEL OF SERVICE RESULTS
YEAR 2013 NO PROJECT CONDITIONS

Roadway	Segment	Cross-section Classification	Time Period	Traffic Volume	Level of Service (A.M./P.M.)
I-5	North of SR-138	Freeway	Daily	80,200[1]	B/B[3,4]
SR-14	South of SR-138	Freeway	Daily	42,375[1]	B/B[3,4]
SR-14	North of SR-138	Freeway	Daily	40,680[1]	B/B[3,4]
SR-138	East of 170th Street West	2-lane Collector	a.m./p.m.	177/246[2]	B/B[4]
170th Street West	North of SR-138	2-lane Collector	a.m./p.m.	22/27[2]	A/A[4]
170th Street West	South of SR-138	2-lane Collector	a.m./p.m.	7/9[2]	A/A[4]

1 Average Daily Traffic (ADT).

2 ADT volumes were converted to a.m./p.m. peak hours volumes using K and D factors obtained from Caltrans Traffic Data Branch website. http:/traffic-counts.dot.ca.gov.

3 Peak Hour LOS.

4 Peak Hour Volume.

TABLE 5.11-14
ROADWAY SEGMENT LEVEL OF SERVICE RESULTS FUTURE (2013)
8-10 MW PROJECT CONSTRUCTION CONDITIONS

Roadway	Segment	Cross-section Classification	Time Period	Traffic Volume	Level of Service (A.M./P.M.)
I-5	North of SR-138	Freeway	Daily	80,307[1]	B/B[3,4]
SR-14	South of SR-138	Freeway	Daily	43,118[1]	C/C[3,4]
SR-14	North of SR-138	Freeway	Daily	40,721[1]	B/B[3,4]
SR-138	East of 170th Street West	2-lane Collector	a.m./p.m.	539/610[2]	C/C[4]
170th Street West (North Access Only)	North of SR-138	2-lane Collector	a.m./p.m.	491/500[2]	A/A[4]
170th Street West (South Access Only)	South of SR-138	2-lane Collector	a.m./p.m.	479/491[2]	A/A[4]

1 Average Daily Traffic (ADT).

2 Peak Hour Volume.

3 ADT volumes were converted to a.m./p.m. peak hours volumes using K & D factors obtained from Caltrans website.

4 Peak Hour LOS.

TABLE 5.11-15
PEAK HOUR INTERSECTION LEVEL OF SERVICE RESULTS
YEAR 2014 NO PROJECT CONDITIONS[1]

Intersection	A.M. Peak Hour		P.M. Peak Hour	
	LOS[2]	Average Delay (Seconds/Vehicle)	LOS[2]	Average Delay (Seconds/Vehicle)
State Route 14 NB Ramps/State Route 138	A	9.3	A	9.9
State Route 14 SB Ramps/State Route 138	A	9.6	A	9.6
90th Street West/State Route 138	B	11.1	B	11.9
110th Street West/State Route 138	B	10.3	B	10.5
160th Street West/State Route 138	A	9.8	B	10.1
170th Street West/State Route 138	B	10.1	B	10.7
La Petite Avenue/State Route 138	A	9.4	A	9.6
270th Street West/State Route 138	A	9.4	A	7.5
Ridge Road/State Route 138	A	7.4	B	10.8

1 Source: URS, 2010 (Traffic Impact Analysis Report; see Appendix G of EIR).

2 LOS = Level of service.

Notes:
Unsignalized intersections – LOS calculated in delay (seconds) not V/C.
All intersections are unsignalized two-way stop controlled. SR-138 is the major roadway.
NB = northbound; SB = southbound.

TABLE 5.11-16
PEAK HOUR INTERSECTION LEVEL OF SERVICE RESULTS
FUTURE (2014) PROJECT OPERATION CONDITIONS

	A.M. Peak Hour		P.M. Peak Hour	
Intersection	LOS	Average Delay (Seconds/Vehicle)	LOS	Average Delay (Seconds/Vehicle)
State Route 14 NB Ramps/State Route 138	A	9.4	A	9.9
State Route 14 SB Ramps/State Route 138	A	9.7	A	9.7
90th Street West/State Route 138	B	11.3	B	12.0
110th Street West/State Route 138	B	10.4	B	10.6
160th Street West/State Route 138	A	9.9	B	10.2
170th Street West/State Route 138	B	10.2	B	10.7
La Petite Avenue/State Route 138	A	9.4	A	9.7
270th Street West/State Route 138	A	9.4	A	7.5
Ridge Road/State Route 138	A	7.4	B	10.8

Source: URS, 2010.
Notes:
Unsignalized intersections – LOS calculated in delay (seconds) not V/C.
All intersections are unsignalized two-way stop controlled. SR-138 is the major roadway.

TABLE 5.11-17
ROADWAY SEGMENT LEVEL OF SERVICE RESULTS
YEAR 2014 NO PROJECT CONDITIONS

Roadway	Segment	Cross-section Classification	Time Period	Traffic Volume	Level of Service (A.M./P.M.)
I-5	North of SR-138	Freeway	Daily	81,650[1]	B/B[2,3]
SR-14	South of SR-138	Freeway	Daily	43,125[1]	B/B[2,3]
SR-14	North of SR-138	Freeway	Daily	41,400[1]	B/B[2,3]
SR-138	East of 170th Street West	2-lane Collector	a.m./p.m.	185/256[2]	B/B[4]
170th Street West	North of SR-138	2-lane Collector	a.m./p.m.	23/28[2]	A/A[4]
170th Street West	South of SR-138	2-lane Collector	a.m./p.m.	8/10[2]	A/A[4]

1 Average Daily Traffic (ADT).

2 ADT volumes were converted to a.m./p.m. peak hours volumes using K and D factors obtained from Caltrans Traffic Data Branch website. http:/traffic-counts.dot.ca.gov.

3 Peak Hour LOS.

4 Peak Hour Volume.

TABLE 5.11-18
ROADWAY SEGMENT LEVEL OF SERVICE RESULTS FUTURE (2014)
PROJECT OPERATION CONDITIONS

Roadway	Segment	Cross-section Classification	Time Period	Traffic Volume	Level of Service (LOS)
I-5	North of SR-138	Freeway	Daily	81,654[1]	B/B[2,3]
SR 14	South of SR-138	Freeway	Daily	43,153[1]	B/B[2,3]
SR 14	North of SR-138	Freeway	Daily	41,400[1]	B/B[2,3]
SR 138	East of 170th Avenue	2-lane Collector	a.m./p.m.	199/270[4]	B/B[4]
170th Avenue	North of SR 138	2-lane Collector	a.m./p.m.	39/44[4]	A/A[4]
170th Avenue	South of SR 138	2-lane Collector	a.m./p.m.	8/10[4]	A/A[4]

1 Average Daily Traffic (ADT).

2 ADT volumes were converted to a.m./p.m. peak hours volumes using K & D factors obtained from Caltrans website.

3 Peak Hour LOS.

4 Peak Hour Volume.

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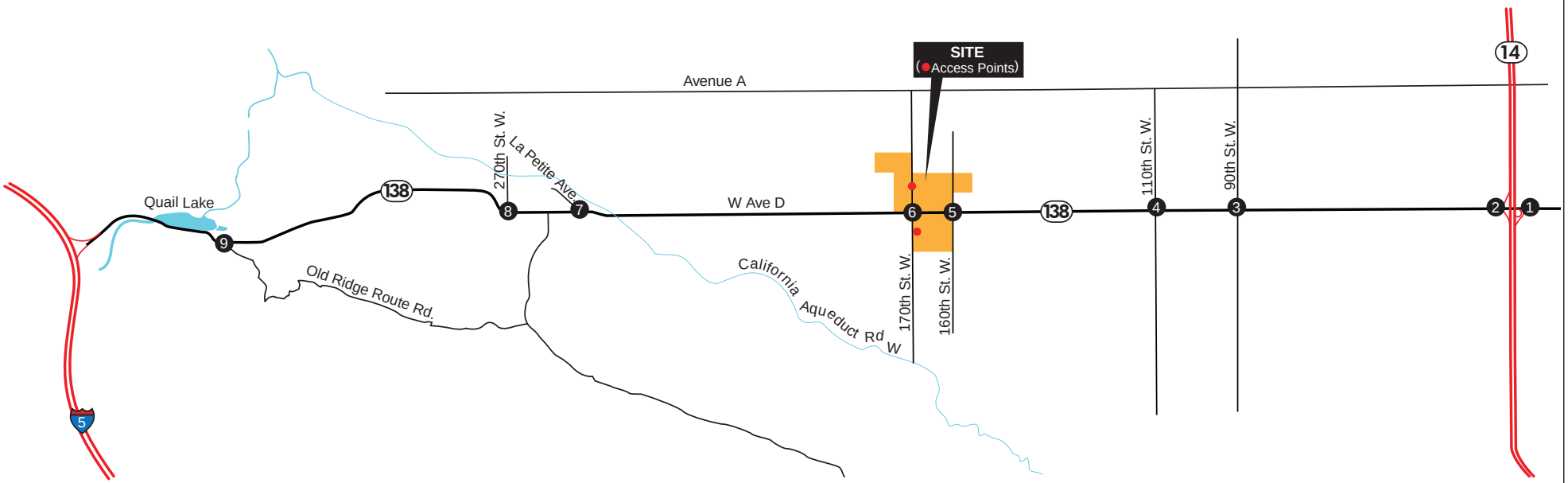

Legend

Study Area Intersections

N

AV Solar Ranch One EIR	**Figure 5.11-1.** STUDY AREA FOR TRAFFIC ANALYSIS	2010

5.10 VISUAL QUALITIES

This section discusses the potential for the construction, operation, and maintenance of the AV Solar Ranch One Project (Project) to cause significant impacts to aesthetic values within the Project vicinity. This section includes an inventory of existing visual conditions and resources within the Project area and an assessment of potential aesthetic effects of the Project on the existing landscape, focusing on the compatibility of the Project with existing conditions and its potential effects on visual resources and public view corridors.

This visual resource analysis was conducted in conformance with Los Angeles County and Kern County guidelines as well as California Environmental Quality Act (CEQA) documentation requirements, which are summarized below. The impact analysis considers potential impacts associated with view obstruction, negative aesthetic effects, and light and glare from the Project. This visual assessment is based on field observations of the Project site and surroundings in addition to a review of topographic maps, Project drawings, and technical data, aerial and ground-level photographs of the Project area, and visual simulations of the Project from key viewing points. The visual resource analysis considers the proposed AV Solar Ranch One facility site and the off-site 230-kV transmission line route that extends into Kern County.

5.10.1 Regulatory Setting

5.10.1.1 Federal

The Project site is located on privately-owned land under the jurisdiction of Los Angeles County. No federal lands considered to be sensitive are located within the visual sphere of influence (VSOI) (i.e., locations where the Project area would be visible) (see Section 5.10.3.3) or that have foreground or middleground views to the Project site (Figure 5.10-1A). The U.S. Forest Service, Angeles National Forest (ANF) is located approximately 5 miles to the south of the Project site at its closest point and the closest road within the ANF (Pine Canyon Road) is topographically screened from the Project site.

5.10.1.2 State

5.10.1.2.1 CEQA. The significance of potential impacts to visual resources is determined based on CEQA guidelines (14 CCR §§ 15000 et seq.) and other relevant considerations. Using these thresholds, impacts arising from the development of the proposed Project and ancillary facilities are evaluated and assigned a significance level. Significance thresholds are described further in the methodology presented in Section 5.10.3.1.

With few exceptions, CEQA requires the mitigation of all project impacts to less than significant levels. Standards of significance for aesthetic resource impacts are described in Section 5.10.3.1.

5.10.1.2.2 State Scenic Highway Program. The California Department of Transportation (Caltrans) administers the State Scenic Highways Program to preserve and protect scenic highway corridors from projects that would diminish the aesthetic value of lands adjacent to highways (Sections 260 et seq. of the California Streets and Highways Code). Scenic highway corridors are defined as the land generally adjacent to and visible by motorists from a scenic highway. The State Scenic Highway System includes a list of highways that are either eligible for designation as scenic highways or have been so designated. These highways are identified in Section 263 of the Streets and Highways Code.

There are no officially designated or eligible state scenic highways within the Project area. No other travel routes within the Project area are designated as state scenic highways or travel routes subject to aesthetic management goals or objectives.

5.10.1.2.3 California State Parks and Recreation. The California Department of Parks and Recreation's mission is to provide for the health, inspiration, and education of the people of California by helping to preserve the state's extraordinary biological diversity, protecting its most valued natural and cultural resources, and creating opportunities for high-quality outdoor recreation. The Department manages a number of public parks within the County of Los Angeles pursuant to the Department's strategic plan, The Seventh Generation – The Strategic Vision of California State Parks (California State Parks and Recreation Department 2001).

There are two California State Parks within the vicinity of the Project site: the Antelope Valley California Poppy Reserve (AVCPR) and the Arthur B. Ripley Desert Woodland State Park (Desert Woodland Park).

Further, the California Department of Parks and Recreation is responsible for over 3,000 miles of hiking, biking and equestrian trails within the state of California. The AVCPR contains existing recreational trails of local and statewide importance; however there are no formal plans for future trail routes identified within the VSOI for the AV Solar Ranch One Project as described in detail below.

5.10.1.3 Local

5.10.1.3.1 Los Angeles County General Plan. The Goals and Policies Element of the Los Angeles County General Plan identifies the following visual related policy to guide the future development within unincorporated Los Angeles County.

***General Goal 15*.** Protect areas that have significant natural resources and scenic values, including significant ecological areas, the coastal zone, and prime agricultural lands (General Plan Goals and Policies, 1993).

***Conservation and Open Space Policy 16*.** Protect the visual quality of scenic areas including ridgelines and scenic views from public roads, trails, and key vantage points. (General Plan Conservation and Open Space Element, 1980).

***Scenic Highways Policy Map*.** The County identifies officially designated and first and second priority proposed scenic highways. Scenic highways indicate where special land management standards and zoning requirements are recommended. The County's First and Second Priority Scenic Highway categories do not designate scenic status, but identify where further study (i.e., corridor study) is proposed to evaluate the road's aesthetic and transportation value. Additionally, Second Priority Scenic Highways would be studied once the studies for the First Priority Scenic Highways have been completed (LACDRP 1974).

There are no County designated scenic highways, corridors or routes within the Project VSOI. The Los Angeles County General Plan (LACDRP 1980) identifies Lancaster Road as a Second Priority Scenic Highway, which at its nearest unobstructed view, is approximately 1.5 miles south of the Project site, as shown on Figure 5.10-1A. The County's First and Second Priority Scenic Highway categories do not designate scenic status, but identify where further study (i.e., corridor study) is proposed to evaluate the road's aesthetic and transportation value. Additionally, Second Priority Scenic Highways, as with Lancaster Road, would be studied once the studies for the First Priority Scenic Highways have been completed (LACDRP 1974).

5.10.1.3.2 Los Angeles County General Plan Update. The LACDRP is undergoing a General Plan Update Program, and released a Draft General Plan in 2008. The following are the applicable policies from the Los Angeles County Conservation and Open Space Element of the Draft General Plan (2008).

***Policy C/OS 11.1*.** Identify and protect scenic resources.

***Policy C/OS 11.2*.** Identify and protect the County's scenic highways, corridors, and routes.

The 2008 Draft General Plan Conservation and Open Space Element identified no designated and no eligible scenic highways in the Project vicinity.

***Policy C/OS 11.4*.** Reduce light trespass and light pollution.

5.10.1.3.3 Antelope Valley Areawide General Plan. The Project site lies within the boundaries of the planning area for the Antelope Valley Areawide General Plan (LACDRP

1986). The Antelope Valley Areawide General Plan includes the following pertinent visual policy.

***Policy 22*.** Minimize environmental degradation by enforcing controls on sources of pollutants (including visual pollution) and noise.

5.10.1.3.4 Ordinance for Drought-Tolerant Landscaping. The County Drought-Tolerant Landscaping Ordinance requires landscaping that requires minimal use of water, and that is appropriate to the region's climate and the nature of a project's use.

5.10.1.3.5 Kern County. The proposed Project's off-site 230-kV transmission line route extends from the Project site north into Kern County. The following policies from the Kern County General Plan Land Use/Conservation/Open Space Element (March 13, 2007) are applicable to the portion of the transmission line route in Kern County.

***Policy 47*.** Ensure that light and glare from discretionary new development projects are minimized in rural as well as urban areas.

***Policy 48*.** Encourage the use of low-glare lighting to minimize nighttime glare effects on neighboring properties.

5.10.2 Environmental Setting

The Project site lies within the Antelope Valley, which is located in the western Mojave Desert. The Project site is relatively flat, with elevations gently sloping downward to the northeast from approximately 2,720 to 2,600 feet, making it a high desert environment. The Antelope Valley encompasses approximately 2,400 square miles in northern Los Angeles County, southern Kern County, and western San Bernardino County. The topographic characteristics of the site and surrounding region allow for open, expansive views of hills and mountains to the north and south of the valley. These include the Tehachapi Mountain Range to the north, Fairmont Butte and Antelope Butte to the south-southeast, and the Transverse Ranges to south.

The Antelope Valley is a triangular shaped, topographically closed basin. The Antelope Valley area is bordered on the south-southwest by the Transverse Ranges, on the southeast by the San Gabriel Mountains, on the northwest by the Tehachapi Mountains, and on the east by a series of hills and buttes that generally follow the San Bernardino County line. Currently agricultural uses are prominent uses in the Antelope Valley, followed by military facilities and residential homes (LACDRP 2009). The past decade has seen a significant influx of residents, attributed largely to relatively affordable housing prices compared to other areas of Los Angeles County (LACDRP 2009). In 2000, the portion of Antelope Valley within Los Angeles County was home to nearly 67,000 persons, and it is projected that over 243,000 residents will be living in the Antelope Valley Planning Area by 2030 (LACDRP 2009).

Two major roadway thoroughfares in the Project region include the Antelope Valley Freeway (State Route 14 [SR-14]) and Interstate 5 (I-5). SR-14 is located approximately 13 miles east of the Project site, and links the adjacent Santa Clarita Valley just north of metropolitan Los Angeles to the eastern portion of the Antelope Valley. Interstate 5 (I-5), which is near the western County line, is located over 20 miles west of the site, and links northern and southern California. Additionally, State Route 138 (SR-138) traverses the Project site in an east-west orientation, and 170th Street West traverses the Project site in a north-south orientation (refer to Figure 5.10-1B).

The regional landscape along SR-138 between SR-14 and I-5 (over approximately 36 miles) consists of generally flat topography with several buttes (Fairmont and Antelope Buttes), a dominance of agricultural and rural uses, undeveloped grazing land, and multiple high-voltage transmission line crossings. Existing power lines (69 kV to 138 kV) are generally located on either or both sides of SR-138, and two power substations are located west of the Project site along SR-138.

In addition, a major regional Southern California Edison (SCE) transmission corridor containing multiple 500-kV and 230-kV lines with lattice towers traverses SR-138 approximately 1 mile east of the Project site, and traverses the proposed transmission line route in Kern County. Several existing wind farm developments are located north of the Project site in southern Kern County.

Agricultural land represents a significant portion of the Antelope Valley in both Los Angeles County and Kern County. Agricultural uses in the Los Angeles County portion of the Antelope Valley include grazing lands, alfalfa, stone fruit orchards, and vineyards (LACDRP 2009). Additionally, several livestock pens are present in the region. Common agricultural crops in the Kern County portion include onions, sugar beets, carrots, and alfalfa (KCPD 2008). Native vegetation typical of the western Mojave Desert includes creosote and desert shrubs, and portions of the valley contain large stands of Joshua trees. The perimeter of the valley includes low brush covered hills transitioning into the Tehachapi Mountains and Transverse Ranges to the west and south, respectively.

A series of concrete flumes and culverts of the California Aqueduct run through this region. One concrete channel crosses SR-138 approximately 7 miles west of the site, and continues to run southeasterly, and at its closest point, is approximately 2.6 miles southwest of the Project site. The Aqueduct is one of the dominant water features in this region. Other water features in the region include Fairmont Reservoir, which is located approximately 3.4 miles south of the Project site, and Elizabeth Lake and Hughes Lake, which are 6 miles south of the Project site. Quail Lake is located approximately 2 miles east of I-5 (over 15 miles west of the Project site). These water features provide recreational opportunities to area residents and

visitors. However, based on the regional topography, the Project site is not visible from these lakes.

Residential uses in the unincorporated areas in the Project region are generally low density, in isolated or small clusters of rural dwellings. Antelope Acres is a rural community located over 6 miles southeast of the Project site. The community of Neenach is located along SR-138 approximately 8 miles west of the Project site, and includes residential and commercial uses. A number of scattered or clustered rural and agricultural residences are also located along SR-138 between SR-14 and I-5. The scattered agricultural residences are located in the vicinity of active or fallow agricultural areas, and typically include associated agricultural equipment and structures. During site reconnaissance efforts in early 2010, several dwellings along SR-138 were observed to have been abandoned.

The nearest large incorporated city to the Project site is the City of Lancaster. The Project site is located approximately 15 miles northwest of downtown Lancaster. In 2009, the City of Lancaster was the eighth-largest city in Los Angeles County and the sixth fastest growing city in Los Angeles County by numeric growth, with a population of approximately 145,074 people (California Department of Finance 2009).

Other notable regional uses include the AVCPR, Desert Woodland Park, and Edwards Air Force Base. The AVCPR and Desert Woodland Park are part of the California State Park system within the Mojave Sector of the Tehachapi District. The 1,781-acre AVCPR reserve contains roughly 7.4 miles of non-motorized trails that meander throughout the property. Approximately 11,440 users are estimated to utilize the Reserve annually, peaking during the wildflower season, generally from mid-February through mid-May (California State Parks 2009). In addition to the reserve's hiking trails, an interpretive center, interpretive displays, and picnic tables are also available for recreational users. In close proximity to the interpretive center, picnic tables are present offering a view over the south side of the valley towards the Transverse Ranges and the San Gabriel Mountains. The Desert Woodland Park is located 2.5 miles southwest of the Project site, at its nearest point. The Park comprises a 566-acre area of native Joshua trees and junipers. The trail is predominantly internal to the Park, and offers few views to the east towards the Project site.

Edwards Air Force Base (AFB), noted for its space shuttle landings, and the Air Force Plant 42 aircraft assembly and testing facility, are substantial industries in the Antelope Valley (LACDRP 2009). Edwards AFB covers 301,000 acres, or roughly 470 square miles, and represents a major use in the Antelope Valley. The Base is located approximately 15 miles to the northeast of the site, and is home to the Air Force Flight Test Center, which serves the purpose to conduct and support research, development, testing, and evaluation of aerospace systems from concept to combat. Air Force Plant 42 occupies approximately 5,840 acres

(approximately 9 square miles), and is a military-owned flight craft production testing installation.

5.10.2.1 Project Site

The Project site is located on an approximately 2,100-acre previously farmed agricultural tract adjacent to SR-138 and 170th Street West in unincorporated Los Angeles County, within the Antelope Valley area of northwestern Los Angeles County. SR-138 and 170th Street West bisect the site (in east-west and north-south directions, respectively). The segment of SR-138 adjacent to the site is not a Designated Scenic Highway by federal (FHWA), state (Caltrans), or local standards. A view of SR-138 where it bisects the Project site is shown on Figure 5.10-4. As shown, existing power lines are located on both sides of the roadway. Existing power lines are located along portions of 170th Street West north of the Project site. Much of the land surrounding the site is used for agricultural production.

The Project site is largely vacant and consists primarily of abandoned agricultural land. However, as the Project site has been historically used for agriculture, there are a few farm structures currently on-site. The farm structures on the Project site, are on an approximately 27-acre ranch area located southwest of SR-138 and 160th Street West, and include: two residences, a mobile home, storage sheds, four cylindrical corrugated steel storage silos, two water wells, and an above-ground fuel storage tank. The two wells may be used during Project construction and operation for process water supply, but all of the structures would be removed prior to Project implementation.

5.10.2.2 Off-site Transmission Line Route

The proposed approximately 3.5-mile-long off-site transmission line route generally follows 170th Street West in a northerly direction to SCE's planned Whirlwind Substation. The transmission line route is planned to be located within, or on private lands adjacent to, the public road right-of-way (ROW) of 170th Street West (refer to Figures 4.3-4A and 4.3-4B).

The land use along the transmission line route is similar to that on and near the Project site, and generally consists of agricultural or undeveloped land with occasional residences (refer to Figure 3-1) or farm-related structures. Existing power lines are located near and leading up to these residential and agricultural-related structures, and provide these uses with electrical service. The existing power lines locations include the following areas along the proposed transmission line route: east-west along West Avenue A8; east-west along West Avenue A; along 170th Street West (Kern County); and east-west along Gaskell Road. Refer to Figure 4.3-3 for the general locations of these areas. Additionally, an existing SCE transmission line corridor is located to the east of the proposed transmission line route. The SCE corridor contains several regional high voltage lines supported on lattice tower structures. The corridor is approximately 1 mile east of the Project site, and trends northwestward where it

intersects the northern portion of the Project transmission route (refer to Figure 4.3-2). A view of the SCE corridor can be seen on Photograph 1 on Figure 5.10-2 (Character Photos 1 and 2).

The portion of the proposed transmission line route in Kern County includes an expanded study area that typically encompasses the area within approximately 200 feet of 170th Street West (refer to Figures 4.3-4A and 4.3-4B). The viewshed characteristics within the expanded study area are essentially the same as for the public road ROW along 170th Street West. Since the transmission line route runs along or near 170th Street West, motorists would have direct views of the poles. Two residential uses (refer to Figure 3-1, residences identified as R-7 and R-6) are located near the proposed transmission line route on either side of 170th Street West near Gaskell Road in Kern County.

5.10.2.3 Existing Visual Resources and Sensitive Viewing Areas

Local planning guidelines, as identified in Section 5.10.1.3, are included in the Los Angeles County and Kern County General Plan documents to preserve and enhance the visual quality and aesthetic resources within the respective plans' jurisdiction. The value attributed to a visual resource is generally based on the characteristics and distinctiveness of the resource and the number of person who view it. Vistas of undisturbed natural areas, unique or unusual features[1] forming an important or dominant portion of a viewshed, and distant vistas offering relief from less attractive nearby features are frequently considered to be scenic resources. In some instances, a case-by-case determination of scenic value may be needed, but often there is agreement within the relevant community about which features are valued as scenic resources.

Character photos of selected areas surrounding the Project site and views from key observation points that show potentially sensitive viewing areas and sensitive visual resources within the surrounding Project area are presented on Figures 5.10-3 through 5.10-6, 5.10-8, 5.10-10, and 5.10-12. Sensitive viewing areas involve views which would have high degrees of exposure and potentially longer duration of views. In many cases proximity to a project would increase viewer exposure and duration of views. Sensitive viewing areas include areas that are known to be scenic, and attract tourists due to the scenic nature of the surroundings, such as the AVCPR.

The Project site area has been previously farmed and contains abandoned agricultural structures. Existing power/transmission lines cross through the Project site area along SR-138, as shown on Figure 5.10-4. As shown, the existing visual character of SR-138 where it traverses the Project site is affected by the existing power lines on both sides of the roadway,

[1] Aesthetic uniqueness is defined as a visual resource, visual character, or visual quality which is rare or uncommonly found at a regional or national scale (FHWA 1981).

which have altered the landscape and reduced the natural scenic value of this portion of SR-138, and viewer expectations. Adjacent areas consist of agricultural uses, open land, and scattered residences. The proposed transmission line route would run alongside 170th Street West in similarly farmed areas containing existing farm structures, power lines, and transmission lines. The existing power lines along portions of 170th Street West north of the Project site have also affected the natural scenic character of the roadway and associated views. For these reasons, the Project area is considered to have moderate scenic value. Therefore, the site is considered to be a moderately sensitive viewing area. As described previously, the Project site area has visual resources (rural agricultural and undeveloped areas, with some infrastructure development) characteristic of the adjacent areas and regional setting. These resources are not considered unique on a regional or national scale.

In the case of the AV Solar Ranch One Project, the Project site and transmission line are not located within any plan-designated scenic resource area or scenic vista. Scenic vistas are typically associated with high visual quality and character, and typically have a high level of sensitivity for viewers. While the Project area and immediate surroundings have a moderate scenic value due to the presence of current and previous agricultural uses, associated structures, and presence of power lines and other infrastructure, the Project area displays characteristics of a scenic vista due to the panoramic views of open areas containing flat desert, with distant views of the surrounding mountains.

5.10.3 Project Impacts

This section describes the inventory of visual resources within the vicinity of the Project, as well as a description of the VSOI of the Project, and the inventory methods and impact assessment results.

5.10.3.1 Methodology and Significance Criteria

The Project site is located in Los Angeles County, which is the lead agency for the purposes of this EIR. The transmission line route travels from the Project site in Los Angeles County into southern Kern County, where the proposed transmission line would interconnect into the planned SCE Whirlwind Substation.

SR-138 and 170th Street West traverse the proposed Project site. The primary foreground and middleground views of the Project facilities would be from motorists travelling along SR-138 and 170th Street West, as well as from several residences west and north of the Project site and along 170th Street West. Accordingly, this visual analysis considers and uses pertinent aspects of the Federal Highway Administration's Visual Impact Assessment for Highway Projects manual (FHWA 1981), which is utilized by Caltrans. Pertinent aspects of this methodology are described further in the applicable impact assessments presented in this visual impact assessment for the AV Solar Ranch One Project.

For the purposes of this EIR and consistency with CEQA Guidelines, applicable local plans, and agency and professional standards, Los Angeles County prescribes the significance criteria identified below in Sections 5.10.3.1.1 and 5.10.1.2 to analyze the Project. The Project would have a significant impact on aesthetics if it would conflict with the following criteria.

5.10.3.1.1 County CEQA Criteria.

- Is the project site substantially visible from or will it obstruct views along a scenic highway (as shown on the Scenic Highway Elements), or is it located within a scenic corridor or will it otherwise impact the viewshed?
- Is the project substantially visible from or will it obstruct views from a regional riding or hiking trail?
- Is the project site located in an undeveloped or undisturbed area that contains unique aesthetic features?
- Is the proposed use out-of-character in comparison to adjacent uses because of height, bulk, or other features?
- Would the proposed Project create a new source of substantial light, glare, or sun shadow which would adversely affect day or nighttime views in the area?

5.10.3.1.2 Selected CEQA Guidelines Appendix G Criteria.

- Would the Project have a substantial adverse effect on scenic vistas or substantially degrade the existing visual character or quality of the project sites and their surroundings?

The significance determination is based on several evaluation criteria, including the extent of project visibility from sensitive viewing areas such as designated scenic routes, public open space, or residential areas; the degree to which the various project elements would contrast with or be integrated into the existing landscape; the extent of change in the landscape's composition and character; and the number and sensitivity of viewers.

5.10.3.1.3 Definition of Visual Impact Levels. In accordance with FHWA and Caltrans methodology, the impact analysis applies the following definition of visual impact levels.

- **Low:** Minor adverse change to the existing visual resource, with low viewer response to change in the visual environment.

- **Moderate:** Moderate adverse change to the visual resource with moderate viewer response. Effects may be reduced within a five year span using conventional practices (e.g., maturation of vegetation screening and associated effectiveness).
- **Moderately High:** Moderate adverse visual resource change with high viewer response or high adverse visual resource change with moderate viewer response. Extraordinary mitigation practices may be required. Landscape treatment required will generally take longer than five years to mitigate.
- **High:** A high level of adverse change to the resource or a high level of viewer response to visual change such that architectural design and landscape treatment cannot mitigate the impacts. Viewer response level is high. An alternative project design may be required to avoid highly adverse impacts.

5.10.3.2 Viewer Response

Viewer response to a project's visual effects is based on several factors: viewer exposure; and three aspects of viewer sensitivity: activity and awareness; local values; and cultural significance (FHWA 1981).

5.10.3.2.1 Viewer Exposure and Sensitivity. Viewer exposure is considered when assessing viewer response, and is defined as the degree to which viewers are exposed to a view by their physical location, numbers viewing, and the duration of view.

While conducting this study, the varying levels of individual viewer concern of change within their landscape was not modeled. Because of the difficulty in inventorying for every individual's sensitivity level, it was conservatively assumed that all viewers may have a high level of concern related to changes occurring in landscapes within the VSOI. Generally, a viewer's concern level, or viewer sensitivity, is associated with but not limited to the following factors:

- Activity in which the viewer may be engaged (e.g., driving, recreation activities, bird watching, etc.)
- Visual acuity related to the intensity of visual detail within a landscape setting, or exposure
- State of mind or attitude
- Preconceived expectations related to scenic quality
- Inherent values related to scenic quality and familiarity within specific landscape settings

5.10.3.3 Visual Sphere of Influence

The VSOI for the Project (Figure 5.10-1) represents the area within which the Project could be seen and potentially result in significant impacts to visual resources. The VSOI was generated by performing a viewshed analysis, which is a method of spatial analysis to determine locations visible from a particular point of observation.

The furthest distance at which potentially significant visual impacts could occur was identified as 5 miles. This distance was determined based primarily on the location and physical characteristics of the facilities described in the Project Description (Section 4.0) regarding the potential visibility of major Project components (e.g., solar photovoltaic array field, the electric transmission lines/system, the Operations Building and on-site substation, and other ancillary equipment for the Project) from sensitive viewing areas.

Based on a 5-mile distance limit, the VSOI boundary was refined to account for local viewing conditions, primarily topographic screening. Computer viewshed analyses were conducted (using 30-meter-grid cell resolution, generated from 1:24,000 Digital Elevation Model [DEM] data from the U.S. Geological Survey [USGS]) to map the boundaries of the VSOI within a 10-mile limit. USGS DEM files were imported into an ArcView 9.2-based Geographic Information System (GIS) using the spatial analysis extension. Since the viewshed analysis was performed based on topographic data (elevations) of the underlying landform, the analysis does not include the screening effect of existing vegetation and structures. This method for assessing potential observer line of sight to the Project area represents a conservative approach to identifying the degree to which the Project site and transmission line is visible.

The centroid[2] of the approximately 2,100-acre site was used to run an existing viewshed map. Then, the centroid of the facility's tallest structure (operations and maintenance [O&M] building at a height of 27.5 feet), the approximately 125-foot-tall (maximum) transmission poles along the transmission line route, and a vertical observer offset of 6 feet were input into the viewshed model. The results represent a "typical" viewshed for the Project area. The results of the viewshed model are presented on Figure 5.10-1A.

The VSOI was mapped to identify the maximum potential area for significant impacts of the Project to visual resources. Once identified, desktop studies as well as field visits were performed to determine which sensitive areas were present within the VSOI. Varying levels of Project visibility have been identified. The highest level of project visibility exists when a viewer is adjacent to a project, is a permanent stationary viewer, and there is no screening. Conversely, the lowest level of visibility exists, for example, when a viewer is located at

[2] Centroid is the term given to the center of an area, region, or polygon, and is the point whose coordinates are the averages of the corresponding coordinates contained within the area, region, or polygon.

greater distances from the project, and the viewer is traveling at the highway speed limit and in partial to fully screened conditions.

Resources within the VSOI are assessed according to the following view ranges:

- Foreground: 0 to 0.5 mile from the observer's position. At this distance, the observer can view details of trees, shrubs, wildflowers, and animals.
- Middle-ground: 0.5 to 5 miles from the observer's position. At this distance, the observer can see forest stands, natural openings, masses of shrubs, and rock outcrops.
- Background: 5 miles to horizon from the observer's position. At this distance, the observer can view mountain peaks, ridgelines, and patterns of forest stands and openings.

Beyond the mapped VSOI, the Project would either not be visible due to topographic screening, or be of such a small size in the background field of view that significant impacts would not be expected.

5.10.3.4 Key Observation Points and Photosimulations

5.10.3.4.1 Key Observation Point Selection. Locations from which the various Project features could be seen were identified as key observation points (KOPs). KOPs are chosen to be representative of the most visually sensitive areas or sensitive viewers that would have views of the Project or ancillary features and generally include people who would see the Project site during construction and operation. Sensitive viewers generally include residents, motorists, and recreationists. The inventory of KOPs included three components: 1) identification and photo-documentation of viewing areas and potential KOPs; 2) classification of visual sensitivity of KOPs; and 3) description of Project site visibility from KOPs. KOPs were identified based on review of available land use data, preliminary viewshed analysis, and field inspection for the evaluation of visual resources.

The results of the field photo survey indicated that most sensitive viewing areas within the VSOI were from those areas with foreground (SR-138, 170th Street West, and several residences to west and north of Project site and along the off-site transmission route) and middle-ground views to the Project associated with the AVCPR. The following is a representative list of sensitive viewing areas that were considered during the inventory:

- Residential areas: several rural residences to the west and north of the Project site (e.g., the closest residences within 0.5 mile)
- Travel routes: major roads or highways used primarily by origin/destination travelers (e.g., local residents, workers, and commuter travelers along SR-138 and 170th Street West)

- Parks, recreation areas, wildlife areas, visitors centers; or areas used for camping, picnicking, bicycling (e.g., AVCPR and the Desert Woodland Park), or other recreational activities

The Project site is visible from a few residences, travelers along SR-138 (primarily commuters and visitors to the AVCPR) coming from I-5 or SR-14 along SR-138, and along 170th Street West within foreground views. Additionally, there are middle-ground views from SR-138 roadway users, residences, and recreational visitors within the AVCPR (approximately 1.5 miles from the site at its closest point), recreational visitors within the Desert Woodland Park (approximately 2.5 miles from the site at its closest point), and elevated sporadic locations within surrounding mountains (5 miles and beyond). The Santa Monica Mountains Conservancy (SMMC) owns lands near the Project site that have scenic quality attributes. The SMMC-owned lands are located southeast of the Project site on Fairmont Butte. Based on the viewshed analysis (Figure 5.10-1A), which does not account for potential vegetation screening effects, viewers located on the northeast portion of the SMMC property may have views of the Project site. If no vegetation screening effects obscure an observer's line of sight, the viewer would be expected to see the facility's perimeter, solar array structures, and potentially the 34.5-kV on-site transmission lines on the southern Project area. Other locations on the property, which are located on the southeast (i.e., backside) of Fairmont Butte would be topographically screened, and would have no view of the site. The SMMC-owned property is vacant and not accessible to the public due to access restrictions on adjacent private lands; therefore, this location was not selected for a KOP.

The two major roadways immediately adjacent to the Project site are SR-138 and 170th Street West. URS performed traffic counts in December 2008 to support the traffic analysis. The average daily traffic (ADT) counts obtained for SR-138 were 2,730 at the Project site, and 254 and 88 for 170th Street West—north and south of SR-138, respectively (URS 2010)(refer to Appendix G of this EIR). While traveling along the Project boundary, travelers would have indirect and direct views of the site. When travelers are not immediately adjacent to the site, topography, the concentration of agricultural activities, and other similar vegetative screening in the area would block some portions of the site and create partially screened and interrupted views of the site.

There are a few residences throughout the valley with varying degrees of views towards the site (refer to Figure 3-1). All residences are 0.4 mile or farther from the site and their views would be characterized as middle-ground to distant view.

The AVCPR, which is approximately 1.5 miles to the southeast of the Project site, contains existing recreational trails of local and statewide importance; however, there are no plans for future trail routes identified within the VSOI.

The Desert Woodland Park is located 2.5 miles to the southwest of the Project site, at its nearest point. The Park comprises a 566-acre area of native Joshua trees and junipers. The park features a picnic table and self-guided informational nature trail. The trail is predominantly internal to the Park, and offers few views to the east towards the Project site. Based on assessment of the sensitive viewers and locations, as described above, KOPs were selected and an evaluation was made as to the degree of visual change from each location as a result of the Project. Five KOPs were selected and analyzed to determine the impacts of the proposed Project on surrounding views. Figures 5.10-1A and 5.10-1B illustrate the five KOP locations identified for the Project, which include the following:

- KOP 1: Motorist view traveling west along SR-138, which bisects the Project site
- KOP 2: Motorist view traveling north on 170th Street West at intersection of 170th Street West and SR-138 (170th Street West also bisects the Project site)
- KOP 3: Recreational user view from a representative trail located within the AVCPR, looking northwest towards Project
- KOP 4: Recreational user view from easternmost edge (trailhead) of Desert Woodland Park looking northeast towards Project
- KOP 5: View from a representative residence located at 50800 172nd Street looking south-southeast towards Project (approximately 0.5 mile north of the site)

5.10.3.4.2 Simulation Preparation. Simulations of the proposed Project from the KOP locations were prepared to provide a comparison of the conditions prior to Project construction activities and to allow for visual comparison as well as provide a qualitative description of the aesthetic changes that would result from the proposed Project.

Photographs were taken using a Fuji GX 617 Panoramic camera providing a 2.25-inch by 6-inch film transparency. The film was drum scanned for use as base images in the view simulations. A Nikon 12-megapixel digital camera set to take a 35-mm lens image was used to take backup, reference and character photos. The locations of the photographic viewpoints were recorded using a hand-held GPS unit. Additional reference information such as power poles, fire hydrants, signage, etc. was recorded at the same time. These items were included in the computer model to aid in aligning the computer model to the photographs.

A computer model of the surrounding terrain was created from USGS topographic information. The terrain model extended outward from the Project center to the ridgelines of the surrounding mountains. This model was used to correctly align the Project computer model to the photographs. The Project elements, buildings, fencing and transmission equipment were modeled from drawings, plans and specifications provided by the Applicant.

The elements were modeled to the level of detail commensurate with the viewpoint in order to provide a photo realistic image. As such, several structural models were employed.

To ensure a high degree of visual accuracy in the visual simulation, computer-aided design (CAD) equipment, and use of global positioning systems were used for life-size modeling. The computer model was aligned to the photographs in specialized image rendering software using the controls mentioned above. All modeled elements were color mapped and textured to simulate actual facility materials. Virtual lights were included in the scene simulating the lighting conditions at the time the photos were taken. The images were then rendered and used in the final composite images.

A comparison of existing views from the KOPs with visual simulations depicting visible Project features (See Figures 5.10-4 through 5.10-13), aided in determining Project related impacts. The simulations served to present a representative sample of the existing landscape settings contained within the VSOI, as well as an illustration of how the Project may look from the identified KOPs. Four of the simulations depict the proposed Project as it would appear after construction, including views from the east, west, and south of the Project. The simulation at KOP 5 depicts the transmission line leading from the Project to the planned SCE Whirlwind Substation.

5.10.3.5 Impact Analysis

Potential impacts to existing aesthetic resources resulting from construction and operation of the proposed Project are discussed below. The impacts are considered for all proposed Project components, including both the short-term construction and long-term operational phases. As discussed above, visual impact is composed of two primary components: change to the visual resource and viewer response to the proposed change. A significant impact is determined when the visual impact triggers significance determination criteria.

The potential visual impacts of the Project are addressed by CEQA criteria in the following sections.

5.10.3.5.1 Criteria 1: Is the project site substantially visible from or will it obstruct views along a scenic highway (as shown on the Scenic Highway Elements), or is it located within a scenic corridor or will it otherwise impact the viewshed?

Construction.

Facility Site. There are no designated scenic highways or scenic corridors adjacent to or with views of the Project, as shown on the Project VSOI (Figure 5.10-1A). Therefore, the Project would have no impacts to obstruct views from designated scenic highways and corridors. Lancaster Road, which traverses through the Project viewshed area, is a Second

Priority Scenic Highway. LACDRP defines this term to indicate that the road is proposed for further study to assess its aesthetic value. At its closest segment, Lancaster Road is approximately 1.5 miles south of the Project site. As shown on the viewshed analysis (Figure 5.10-1A), the Project site is intermittently visible along this portion of the road. In the event that the viewer is able to establish a clear sightline to the site, the Project would be observed in the middleground view, where observers would not be able to clearly discern specific construction activities.

A viewshed is comprised of the surface areas visible from an observer's viewpoint. During construction, the Project would be constructed in stages, such that only portions of the site would be active at any one stage. Construction activities are temporary, and would involve the use of mobile heavy equipment, storage of materials at laydown and work areas, and active work activities (i.e., earthwork and construction). Additionally, the Project construction would involve erection and temporary use of two assembly buildings (peak height of approximately 35 feet), and may use a temporary concrete batch plant. Construction equipment has the potential to introduce glint and/or glare into the viewshed; however, such effects would be transitory, and would be generally limited to active work areas during daylight hours. These construction characteristics are temporary, and would not be expected to obstruct or interfere with views in the viewshed. Additionally, as shown on the simulations from KOPs (Figure 5.10-4 through 5.10-13), existing vegetation would contribute varying levels of screening effects. As a result, construction-related impacts to the viewshed are expected to be less than significant. Construction activities would be visible and affect near-roadway views from SR-138 and 170th Street West. However, more distant views from the AVCPR and Desert Woodland Park would not be able to clearly discern specific construction activities, but would be aware in general of increased development. As a result, temporary construction impacts to the viewshed would be less than significant.

Furthermore, while Project construction impacts would be expected to be less than significant, implementation of Mitigation Measure 5.10-1, which requires implementation of temporary screening of construction and staging areas along SR-138 as required by LACDRP, and Mitigation Measure 5.10-2, for construction housekeeping to keep construction areas clean of debris, trash, or waste, would further ameliorate construction effects.

Off-site Transmission Line. Construction of the 230-kV transmission line would occur over a period of approximately 4 months, and would progress within, or on private lands adjacent to, the 170th Street West public road ROW. Construction activities would involve short term use of heavy equipment including cranes, limited excavations for pole holes, foundation and pole installation, equipment assembly, and use of laydown areas (at each pole location).

As discussed above, no designated scenic highways or corridors are located within the Project viewshed; therefore, the transmission line would result in no impact to designated scenic highways or corridors. The proposed off-site transmission line would be located more than 3 miles from Lancaster Road. At these distances, construction activities along the transmission line route, if visible, would be located between middleground and background views, and would not be expected to be clearly discernable from Lancaster Road. Construction of the transmission line would be temporary and transient along 170th Street West. As described in Section 4.0 (Project Description), construction of the entire transmission line would last for approximately 4 months. Of this time, installation of each pole would take between 1 to 2 days. Once all poles are installed, the conductors will be strung, which would entail use of an estimated total of 6–8 conductor stringing sites, with smaller equipment (i.e., pick-up trucks and flatbed trucks) traveling along the transmission line route as the conductor is installed. Based on the temporary and transient nature of these construction activities, the transmission line construction would not result in a substantial impact to the viewshed, and impacts would be less than significant. Additionally, implementation of Mitigation Measure 5.10-2, Construction Housekeeping, would keep construction areas clean of debris, trash, or waste, and would further ameliorate construction effects.

Operation.

Facility Site. During operation, major features at the Project site that would potentially be visible include rows of solar arrays (maximum height of 15 feet), an internal road network, a 20,000 square foot O&M building (peak height of approximately 28 feet), firewater tanks, a substation, electrical inverters and medium-voltage transformers up to 8 feet in height on approximately 185 concrete pads throughout the site, and perimeter fencing (height of approximately 8 feet) (refer to Figure 4.4-1A). As discussed previously, there are no scenic highways or corridors adjacent to or with views of the Project site; thus, the Project would result in no impacts to designated scenic highways and corridors. Lancaster Road, which has been identified to have secondary priority for scenic assessment, may potentially offer observers middleground views (approximately 1.5 miles away) of the Project site that would be limited due to intervening topography. Based on the Project design and use of low profile equipment, the Project would not significantly obstruct views from Lancaster Road. The Project would have no impacts to obstruct views from designated scenic highways and corridors.

The Project facility would result in moderate changes to the viewshed due to the increased presence of manmade structures with elevational relief. The Project facility also proposes use of on-site, overhead 34.5-kV transmission lines. As shown on Character Photo 2 (Figure 5.10-2) in the Project area along SR-138 at 170th Street West, the Project vicinity contains existing power lines. As shown on the Project VSOI (Figure 5.10-1A), the Project site would

be most visible from areas adjacent to the site (for instance, residences), and from motorists along SR-138 and 170th Street West. The Project site is immediately adjacent to open areas in a rural area with low residential density, and is surrounded by less than 5 residences. The nearest residence is located approximately 0.4 mile from the site. From this distance, observers at this residence would experience a middle-ground view of the site. Figure 5.10-13 shows a simulation of the view toward the developed Project site from a representative residential location 0.5 mile from the site. As shown, the Project facility is largely obscured by the intervening vegetation.

As discussed in Section 5.10.3.4, the highest level of project visibility exists when a viewer is adjacent to a project, as with viewing locations along SR-138 and 170th Street West. The simulated views of the Project site along SR-138 and 170th Street West are shown on Figure 5.10-5 and Figure 5.10-7, respectively. As discussed in Section 5.10.3.2.1, viewer exposure is affected by viewer location, numbers viewing, and duration of view. SR-138 in the Project vicinity experiences a measured ADT volume of 2,730 vehicles, which constitutes a moderate use of the state highway. The duration of view however, is 2–3 minutes, which in consideration that viewers would tend to be motorists driving past as well as the context of the regional landscape (i.e., from SR-14 to I-5), is a relatively short duration.

The proposed site layout includes setbacks from SR-138, which is currently a two-lane highway. As discussed in Section 4.4.6.1.3 (Project Description), the facility fence line is set back approximately 120 feet from the centerline of the SR-138, on both site areas north and south of SR-138. The proposed arrays would be further set back by approximately 30 feet from the fence line, for an estimated total of 150 feet minimum from the centerline of SR-138.

Additionally, the Project includes several design and enhancement features to address the foreground views of the facility along SR-138. The appearance of the facility along SR-138 as a result of these features is shown on Figure 5.10-5 (Simulated View of KOP #1). These features consist of the following:

Use of Horizontal Trackers Along SR-138. If tracker technology is utilized, horizontal trackers, which have a lower elevational relief (approximately 6 to 11 feet at the highest point, depending on the manufacturer) compared with tilted trackers (12 to 15 feet above ground surface) will be used approximately 1,000 feet into the solar field from the fence line north and south of SR-138 to reduce the visibility of the facility from SR-138. Fixed-tilt panels would have a lower profile than either horizontal or tilted trackers.

Landscaping Along SR-138. A plan for installing a 10-foot wide vegetated area of Joshua trees and/or other native yucca trees, and native shrubs (e.g., Great Basin sage, rabbit brush, and four-wing salt brush) along the outside of the facility fence lines north and south

of SR-138 will be prepared prior to construction. The landscaping will be installed within 14 months of the commencement of construction activities. The vegetation will be initially watered as necessary (e.g., for one to two years) to facilitate establishment, and will be maintained and monitored thereafter to promote successful, long-term establishment of the native vegetation. Additional water may be needed in the first 2 years of operation for supplemental plantings. It is considered unlikely, but possible, that additional water may be needed later during the operation phase for supplemental plantings if landscape vegetation expires and needs to be replaced.

As shown on Figures 5.10-4 (Existing View of KOP #1) and 5.10-5 (Simulated View of KOP #1), the Project's implementation of the design and enhancement features (i.e., the facility setback from SR-138 (approximately 120 feet from centerline of the roadway to Project fence lines), use of the lower elevation trackers, and vegetated areas along the fence line) would maintain views to the distant mountains, and would result in less than significant changes to the foreground views along SR-138.

170th Street West experiences a low level of traffic, where the measured ADT resulted in 254 vehicles north of SR-138 and 84 south of SR-138 (URS 2009). The low traffic volume indicates a low viewer exposure to the Project site, and because viewers would be expected to be motorists driving along the street, the duration of view of the site would be relatively short (approximately 2-3 minutes). Additionally, the facility layout is designed with fence line and array setback distances that would further minimize the visual change at the foreground views along 170th Street West. As shown on Figure 4.4-1A, the facility fence line is set back from 170th Street West a minimum of 50 feet, and the arrays are additionally set back from the fence line by a minimum of approximately 30 feet. The appearance of the development facility along 170th Street West is presented on Figure 5.10-7 (Simulated View of KOP #2). In consideration of the low viewer exposure, the preservation of views to the distant mountains, and the moderate change to the foreground views of the facility, the Project would result in less than significant impacts to views along 170th Street West.

In summary, based on the moderate changes to the Project area viewshed and less than significant impacts to background, middle-ground, and foreground views, the Project facility would be expected to result in less than significant effects to the viewshed. While the Project impacts are not considered significant, implementation of Mitigation Measure 5.10-3, Building and Equipment Paint, which requires neutral and non-reflective paints and pigments on proposed on-site building and equipment structures, Mitigation Measure 5.10-4, which requires County approval of a landscaping plan for the proposed screening vegetation along SR-138, and Mitigation Measure 5.10-5, requiring the Applicant to maintain additional land on both sides of SR-138 free of trash and debris until the applicable lands are transferred to Caltrans and improved by the County, would further ameliorate less than significant Project operation impacts.

Off-site Transmission Line. As discussed above, there are no designated scenic highways or corridors within the Project VSOI; therefore, the 230-kV transmission line would result in no impacts to designated scenic highways and corridors. The proposed off-site transmission line would be located approximately 4 miles and greater from Lancaster Road, which LACDRP has proposed for second priority aesthetic assessments. At this distance, the transmission line, if visible, would be located in the background view for observers along Lancaster Road. The transmission line would not be considered substantially visible at this distance.

The transmission line wires (conductors) would be made of non-reflective material and would be supported on approximately 50 to 125-foot-tall tubular steel poles. The transmission poles will typically be about 4 to 6 feet in diameter (at the base, tapering upward) and would be located approximately every 700 feet between the northern site boundary and the off-site interconnection point (i.e., SCE Whirlwind Substation). A representative view of the transmission pole structure (single-circuit) that the Project proposes in Los Angeles County is shown on Figure 5.10-14A. A representative transmission pole structure that the Project may propose in Kern County (double-circuit to allow for co-locating with other projects) is shown on Figure 5.10-14B.

While the introduction of Project transmission lines is a feature that has the potential to negatively affect the visual environment, this feature does not dominate the aesthetic features of these views. The proposed transmission line poles would be spaced substantially apart (i.e., 700 feet). Also, the presence of existing power lines and the SCE transmission corridor (as described in Section 5.10.2.2) with multiple tower structures create an existing viewshed context already containing power poles and the larger transmission tower structures. Furthermore, since the 230-kV transmission line would be constructed using tubular steel poles and not lattice towers, the proposed transmission line would be less obtrusive and would not obstruct views. As a result, the 230-kV transmission line would be expected to result in less than significant impacts to the Project area viewshed.

5.10.3.5.2 Criteria 2: Is the project substantially visible from or will it obstruct views from a regional riding or hiking trail?

Construction.

Facility Site. The Project is located on private land, and does not contain, nor is adjacent to regional riding or hiking trails. The Project site is located approximately 1.5 miles north of the AVCPR at its closest point, and more than 2.5 miles (at its closest point) from the Desert Woodland Park. Construction activities on the Project site would require temporary use of heavy equipment, and storage of materials at the construction laydown locations, and construction work throughout the site.

As shown on the Project VSOI (Figure 5.10-1A), most of the areas within the AVCPR are obstructed from views of the Project site as a result of the topographic screening effect of Fairmont and Antelope Buttes. For areas where the topography gives a more direct view to the Project site, park visitors and trail enthusiasts may potentially have a partially obscured, middle-ground view of the solar photovoltaic array field and other visible features of the Project. However, views from the AVCPR to the Project site also contain cultural modifications such as existing roads, transmission lines, limited residential uses, and agricultural development. Figures 5.10-8 and 5.10-9 present the existing and simulated views, respectively, of the Project site from KOP #3, from within the AVCPR.

Views from the Desert Woodland Park to the Project site are not topographically obstructed (Figure 5.10-1A). The existing and simulated Project area views from the Desert Woodland Park (also identified on the Project VSOI, Figure 5.10-1A) are shown on Figures 5.10-10 and 5.10-11, respectively.

The existing views and the Project simulations provide an indication of the distance and the degree that intervening topography and vegetation would screen potential views of the Project construction activities from the recreation areas. As shown in Figures 5.10-8 through 5.10-11, views of the developed Project site from the AVCPR and Desert Woodland Park are difficult to clearly distinguish. Additionally, the viewers' attention is drawn away from the middle-ground toward the more dominant features (background mountains, in the case of the AVCPR, and foreground vegetation with associated colors and texture, at both the AVCPR and Desert Woodland Park).

Since the proposed construction equipment, temporary buildings, and activities have a similar range of heights compared with the operational facility components, it is expected that in general, construction activities would not be clearly distinguishable from the AVCPR and Desert Woodland Park. Viewers from these locations would not be able to clearly discern specific construction activities, but may be aware of general increased development. As a result, construction activities on the Project site would not be expected to generate significant impacts to regional riding or hiking trails. Impacts would be less than significant.

Off-site Transmission Line. There are no regional riding or hiking trails in the near vicinity of the 230-kV transmission line. The AVCPR and Desert Woodland Park, which are the nearest publicly accessible recreational areas with hiking trails are located more than 3.5 miles from the transmission line, at the nearest locations. Construction activities would require the use of heavy equipment, and would involve excavated areas, stockpiled soils, and other materials within the construction work and staging areas, which would have low relief in the visual landscape. Construction equipment has the potential to introduce glint and/or glare; however, such effects would be temporary. As shown on simulations of the Project site and transmission line from AVCPR and Desert Woodland Park (Figures 5.10-9 and 5.10-11,

respectively), views of the transmission line area would not be substantially visible from local recreational areas and trails, thus, transmission line construction activities would result in less-than-significant impacts to riding and hiking trails.

Operation.

Facility Site. As discussed above, the Project is located on private land and would not obstruct views from a regional riding or hiking trail. No established or proposed hiking or equestrian trails are present on the Project site or adjacent to the site.

Figures 5.10-9 and 5.10-11 present simulated views of the Project site from representative hiking trail locations within the AVCPR (KOP 3) and Desert Woodland Park (KOP 4), respectively (refer to Figures 5.10-1A and 5.10-1B for the locations of the KOPs). Based on the distance from the KOPs, the Project site would occur as middleground views; however, as shown on the simulations, views of the Project site are somewhat obscured from the AVCPR and Desert Woodland State Park as a result of distance, topography, and intervening vegetation. While the Project would not dominate the existing form, line, colors and textures of the existing scenery as in closer views, the Project would have a small adverse affect on the expansive panoramic vista.

Viewer response at the KOP 3 and 4 locations is likely to be dependent on the activities that the viewer is engaged in at the time of encountering views of the Project. Recreationists at the AVCPR are likely to be largely attracted to foreground views of wildflowers, while aesthetically pleasing elements of background views of distant landscapes and horizon line mountain features also tend to draw the eye. Existing middleground views from the AVCPR include cultural features such as views of roads, homes and transmission lines. These features are likely to be overlooked in favor of the more aesthetically pleasing and dominant features and visual resources available (Figure 5.10-9).

Recreationists at the Desert Woodland Park are likely to be focused on views available in the foreground, consisting of interesting native vegetation which is showcased by the preserve. Views of the Project are difficult to achieve and require the viewer to be situated at the extreme eastern edge of the Park looking outward towards the Project. Viewers are much more likely to be focused on the interior of the Park at this location than at the AVCPR which has elevated views to the horizon. Views from the Desert Woodland Park are not elevated and views of the Project may only be experienced on the eastern fringe of the park (Figure 5.10-10). As a result, potential visual impacts to regional riding or hiking trails would be less than significant.

Off-site Transmission Line. There are no regional riding or hiking trails that would experience impacts to visual resources as a result of the transmission line. The transmission line would be located within, or on private lands adjacent to, the public road right of way

(ROW) of 170th Street West, and as shown on simulated Project views from representative hiking trails in the AVCPR and Desert Woodland Park (KOP 3, Figure 5.10-9 and KOP 4, Figure 5.10-11, respectively), the proposed transmission line would not be substantially visible from local recreational areas and trails.

5.10.3.5.3 Criteria 3: Is the project site located in an undeveloped or undisturbed area that contains unique aesthetic features?

Construction.

Facility Site. The Project site is located in a rural area with surrounding agricultural activities and low residential density. The Project site was previously used for agricultural production that has gradually ceased throughout the site, with the last crop (approximately 80 acres) grown in 2004. Aesthetic features of the visual environment in this area are relatively uniform, with broad, dry, flat landscapes leading to distant mountains. There are no unique aesthetic features on the Project site. Nearby unique aesthetic features include the Fairmont and Antelope Buttes, AVCPR, and Desert Woodland Park. Construction of the Project site would not involve equipment or activities that would obstruct views of Fairmont Butte, and views of Antelope Butte are screened by Fairmont Butte. Additionally, as discussed previously (Section 5.10.3.4.2), views from the AVCPR and Desert Woodland Park would not be substantially affected by the Project construction activities. As a result, construction of the Project would not significantly impact unique aesthetic features. Furthermore, while Project construction impacts would be expected to be less than significant and temporary, implementation of Mitigation Measure 5.10-1, which requires implementation of temporary screening of construction and staging areas along SR-138 as required by LACDRP, which provides a moderate level of viewer exposure (ADT of 2,730 vehicles), and Mitigation Measure 5.10-2, for construction housekeeping to keep construction areas clean of debris, trash, or waste, would further ameliorate construction effects.

Off-site Transmission Line. The proposed transmission line route would be located within, or on private lands adjacent to, the 170th Street West ROW. Similar to the Project site, the visual environmental along the transmission line route consists of relatively uniform aesthetic features, with broad, dry, flat landscapes leading to distant mountains. The portion of the transmission line route in Kern County generally traverses agricultural areas, and also includes areas having existing power lines. There are no unique aesthetic features along the transmission line route, or in immediately surrounding areas. Unique aesthetic features identified in the Project region include the AVCPR and Desert Woodland Park, which are located more than 3.5 miles from the transmission line, at the nearest locations. As described previously (Section 5.10.3.4.2), temporary construction activities would not be expected to impact these unique visual resources due to distance, and intervening vegetation and topography. As a result, construction of the transmission line is not anticipated to result in

significant adverse impacts to unique aesthetic features. Additionally, Mitigation Measure 5.10-2 (Construction Housekeeping) would further ameliorate transmission line construction effects.

Operation.

Facility Site. The Project site is located in a rural desert area with agricultural and undeveloped areas, and infrastructure (i.e., SR-138, 170th Street West, ranch residences, and power lines along SR-138), which are characteristic of the adjacent areas and surrounding region. As such, the Project site itself does not contain unique aesthetic features. The Project would not affect unique trees, such as Joshua trees, and the Project site landform is relatively flat and constant. Additionally, the Project would not affect water features or rock outcroppings. Also, based on the dimensions and heights of the Project facility components (solar array fields, O&M building, substation, electrical inverters and medium-voltage transformers on concrete pads, fencing, and 34.5-kV transmission lines), the Project would not obstruct views of nearby Fairmont Butte. As discussed previously (Section 5.10.3.4.2), views from regional aesthetic features, (i.e., AVCPR and the Desert Woodland Park) would not be substantially affected by the presence of the Project facility. As a result, the Project would be expected to result in less than significant impacts to unique aesthetic features.

Off-site Transmission Line. As stated previously, no unique aesthetic features are located along or within the near vicinity of the transmission line. There are a few homes located in the vicinity of the transmission line route along 170th Street West north of the Project site that would have immediate views of the transmission line and associated poles. A simulated view from a representative residence (KOP 5) showing the transmission line is provided on Figures 5.10-12 (existing condition) and 5.10-13 (simulated view). As shown, transmission facilities would be added features affecting the surrounding area, however the line would not significantly dominate features along the transmission line route area. Additionally, views of the transmission line from AVCPR and the Desert Woodland Park would not be anticipated to cause adverse, significant effects as discussed in Section 5.10.3.4.2. As a result, the Project transmission line is expected to result in less-than-significant impacts to unique aesthetic features.

5.10.3.5.4 Criteria 4: Is the proposed use out-of-character in comparison to adjacent uses because of height, bulk, or other features?

Construction.

Facility Site. Construction activities would require the use of mobile construction equipment, storage of materials, and active work areas (refer to Figure 4.4-14). Additionally, the construction activities would involve the erection and temporary use of two assembly buildings (peak height of approximately 35 feet), which would be constructed of galvanized

tubular steel clear-span frames, covered with skins of heavy-duty, weatherproof, translucent fabric. The Project may also use a temporary and portable concrete batch plant that would be located in the vicinity of the assembly buildings. These construction activities, including the presence and use of associated construction vehicles and equipment, would be considered out of character with the order, patterns, colors, and texture of the surrounding rural, agricultural, and open areas. However, the Project construction phase would be temporary, and site work would progress in stages through the site, where limited portions of the site would be active at any one time. As a result, construction of the Project site is not expected to cause significant out of character use.

Furthermore, while Project construction impacts would be expected to be less than significant and temporary, implementation of Mitigation Measures 5.10-1 (Visual Screening) and 5.10-2 (Construction Housekeeping) would further ameliorate construction effects to adjacent uses.

Off-site Transmission Line. The transmission line route traverses broad, dry, flat landscapes that include agricultural lands, and areas having existing power lines and a nearby SCE transmission corridor (as described in Section 5.10.2.2, and shown on Figure 4.3-2). A few homes are located in the vicinity of the transmission line route along or near 170th Street West north of the Project site that would have immediate views of the transmission line construction. Construction of the transmission line would involve use of mobile, heavy equipment and temporary staging areas. However, construction effects would be temporary at each pole location (1–2 days to install each pole, followed by conductor stringing), and would not be expected to result in significant impacts as an out of character use. Additionally, while these effects are less than significant, implementation of Mitigation Measure 5.10-2 (Construction Housekeeping) would help ameliorate the effects.

Operation.

Facility Site. As discussed above, visual character is comprised of the order of the patterns composing a landscape. The elements of these patterns consist of the form, line, color, and texture of the landscape's visual resources. As discussed previously, the adjacent uses consist of infrastructure development (i.e., roads, highways, power lines, and transmission lines), agricultural uses with appurtenant structures, low density residential uses, and open undeveloped land.

During operation, the Project would not involve substantial active operations. Normal operational activities are expected to include infrequent mowing of on-site vegetation, semiannual panel washing, general equipment maintenance activities, and in the event that tracker technology is installed, gradual movement of the solar panels to track the sun. Visible features of the Project site would consist of rows of solar arrays (maximum height of 15

feet), an internal road network, a 20,000 square foot O&M building (peak height of approximately 28 feet), substation, electrical inverters and medium-voltage transformers enclosures, water tanks (up to 25 feet in height), and perimeter fencing (height of approximately 8 feet). The electrical inverters and medium-voltage transformers would be located on approximately 185 concrete pads (15 feet wide by 60 feet long) throughout the site (refer to Figure 4.4-1A).. Three electrical inverters and one medium-voltage transformers would be either installed within large walk-in enclosures at each pad location, where the enclosures would not exceed the pad dimensions (15 feet by 60 feet) or be within individual outdoor-rated, cabinet-type enclosures (approximately 12 feet by 4 feet for each inverter, and approximately 4 feet by 3 feet for the associated transformer). The maximum height of these electrical equipment components would not exceed 8 feet regardless of enclosure type, and the finish on the enclosures would be a non-reflective neutral color. The walk-in enclosures would be larger in size and appearance than the individual cabinet-type enclosures. However, both enclosure types would be about 8 feet high (maximum) and the enclosures, regardless of type, would be within the solar fields surrounded by solar panels of a similar height. Therefore, the inverter/transformer enclosures would not represent an obtrusive feature from a visual perspective regardless of enclosure type.

The Project facility also proposes use of on-site 34.5-kV transmission lines; however, as shown on Figures 5.10-2 through 5.10-4, the existing visual environment in the Project area contains multiple existing power lines.

The Project site is immediately adjacent to open and agricultural areas in a rural setting with low residential density, and is surrounded by less than 5 residences within 0.5 mile of the site. The nearest residence is located approximately 0.4 mile from the site. Figure 5.10-13 shows a simulation of the view toward the developed Project site from a representative residential location (KOP 5) 0.5 mile north of the site. As shown, the Project facility is largely obscured from view at KOP 5 due to distance and intervening vegetation.

As addressed in Section 5.10.3.4, the Project features would be most visible in the foreground views, where the site would potentially have a dominant scale to the visual environment. However, as discussed in Section 5.10.3.5.1, the proposed Project design and enhancement features entailing facility setbacks, use of horizontal trackers along the fence line, and implementing landscaping along SR-138 such that the Project equipment and structure height and bulk would not result in substantial out-of-character changes. This is depicted on Figure 5.10-5, which shows the simulated view of the facility along SR-138. As shown, the facility setback provides an open area, the horizontal trackers reduce equipment height, and the vegetation contributes to the continuity of the native desert vegetation (in comparison to the former agricultural use), and helps screen views of the facility.

The proposed Project would also implement facility setbacks along 170th Street West, which result in the view presented on Figure 5.10-7. As shown, the developed Project site does not result in substantial height, bulk, or other features in the Project area, and the character remains generally consistent with existing conditions at foreground views from 170th Street West. Also, as shown on simulations of the Project site (Figures 5.10-5 and 5.10-7), which reflect equipment, structure, and building dimensions, the facility would not contribute bulk that would significantly obstruct or change the middle-ground or background character beyond the Project site.

As a result, because the Project would not involve substantial activity during operation, and as indicated on the Project simulations (Figure 5.10-5 and Figure 5.10-7), the Project facility would contribute moderate changes in bulk and height due to the increased presence of manmade structures, the developed Project would result in less than significant changes to the character of adjacent uses. While the Project's impacts would be considered less than significant, implementation of Mitigation Measures 5.10-3 (Building and Equipment Paint) and 5.10-4 (Screening Vegetation Landscaping Plan) would further ameliorate these effects.

Off-site Transmission Line. Uses along and adjacent to the transmission line route consist of agricultural uses with associated structures, vacant land, existing infrastructure (roads, power lines, and the SCE transmission line corridor), and several residential uses.

The residences identified within 0.5 mile of 170th Street West are shown on Figure 3-1. These residences are served by existing overhead power lines that run along portions of 170th Street West (West Avenue A to Gaskell Road), West Avenue A8, West Avenue A, and Gaskell Road. Two (2) residential uses (refer to Figure 3-1, residences identified as R-7 and R-6) are located near the proposed transmission line route on either side of 170th Street West near Gaskell Road in Kern County. The proposed transmission line route is located on the opposite side of 170th Street West from residence (R-7), but traverses near the front of the residence (R-6) on the east side of 170th Street West. The Applicant would need to obtain an easement from the property owner for the transmission line route in this area. The terms of the easement would be expected to include provisions for moving, vacating or demolishing residence R-6, if appropriate.

The proposed transmission line would result in a moderate change to the visual character in foreground views, as shown in KOP 5 (Figures 5.10-12 and 5.10-13) and viewers would be sensitive to that change. However, due to the substantial spacing between the poles (700 feet on average), the presence of existing power poles along and around 170th Street West, and the presence of the SCE transmission corridor containing several high voltage lines mounted on lattice tower structures, the Project's proposed transmission line structures would not add substantial bulk or height that would significantly affect the adjacent character. Additionally, viewer exposure would be low as there are a small number of homes with immediate views

of the transmission line features and a low number of motorists (i.e., and ADT of 254 vehicles along 170th Street) in the area. Representative views of the proposed single-circuit (Los Angeles County portion) and double-circuit (potentially applicable to Kern County portion) transmission poles are presented on Figures 5.10-14A and 5.10-14B, respectively.

Figures 5.10-12 and 5.10-13 provide the existing and simulated views, respectively, of the transmission line route at the representative residence (KOP 5) on 172nd Street West. From these photographs it can be seen that the transmission line feature would not substantially detract from the existing character of the surroundings and views of distant mountains, which provide the more scenic aspects of residential views in this area.

Residential viewers are generally considered highly sensitive viewers due to duration of view. Residents have frequent opportunities to experience the views from various places on the property and routinely visit the surrounding areas. However, due to the few residences with views of the transmission line in the foreground views, viewer exposure is considered low. Based on the considerations of the degree of severity of resource change (i.e., proposed transmission line in an area with existing poles and the larger transmission lattice towers), degree of viewer exposure (low), and assumed high viewer sensitivity, the proposed transmission line feature is considered to have an adverse, but less than significant impact related to out of character changes.

5.10.3.5.5 Criteria 5: Would the proposed Project create a new source of substantial light, glare, or sun shadow which would adversely affect day or nighttime views in the area?

Construction.

Facility Site. Construction activities in this area have the potential to generate short term impacts to the Project area. Construction activities are planned to occur during daylight hours. Glint and glare may result from use of heavy equipment and structures, storage of materials, and materials within the construction work and staging areas construction activity would constitute potentially negative aesthetic elements that may contribute to glint/glare effects in the visual landscape. Such effects, however, would be temporary and would be expected to result in less than significant impacts to day views in the area.

Some night lighting could temporarily occur in the event that construction work at night is needed in order to meet the construction schedule. In the event that nighttime work is needed, the Project work would be performed using the minimum illumination needed to perform the work safely. All lighting would be directed downward and shielded to focus illumination on the desired work areas only, and to ensure that light does not trespass onto adjacent properties. As applicable, work in the solar field areas at night would be performed using battery or gas-powered light stands that would be directed to the work area. The performance

of work with small battery or gas powered light stands utilizing the minimum required illumination and shielding in combination with focused lighting on the specific work areas would minimize potential lighting related effects for any nighttime work. In addition, the Project site is not located near any residences (i.e., closest residence is approximately 0.4 mile away from the Project site boundary), thus the potential for shielded, downward focused lighting to adversely impact any residences is minimal. As a result, the Project would not be anticipated to adversely impact nighttime views in the Project area.

Off-site Transmission Line. Construction of the off-site transmission line could generate short term glare impacts to visual resources due to use of construction equipment. These negative aesthetic elements would directly affect foreground views, but would have a short duration (i.e., 1–2 days to install each pole, followed by conductor stringing), since the transmission construction work would progress along 170th Street West at respective pole locations. Potential glint and glare impacts associated with off-site transmission line construction would be less than significant.

Operation.

Facility Site. The proposed Project would not include any uses that would produce new sources of substantial light or glare during the operational phase. The solar arrays are photovoltaic, and are therefore designed to absorb and not reflect light, and would not create reflective surfaces or the potential for glint/glare. The O&M building would be a pre-engineered steel building with: 1) color compatible steel siding chosen to minimize visual impact; and 2) translucent roof panels. The Project would implement Mitigation Measure 5.7-11, Facility Lighting, which would ensure that nighttime lighting would result in insignificant effects. Lighting would be designed to provide the minimum illumination needed to achieve safety and security objectives, and would be directed downward and shielded to focus illumination on the desired areas only, and would be installed to ensure that light does not trespass onto adjacent properties. Lighting would be provided at the O&M building, parking lot, main plant access road, pump and similar equipment locations (for instance, in the event that a fire pump house is required), and substation control structure. Lights at the main plant access gate, doorways, and the O&M building parking would remain in the on position, and would be light-activated to automatically come on in the evening and shut off in the morning. Other lights would normally be shut off and turned on only when worker activity requires. There would be no permanent lighting in the solar field. Similar to construction, some night lighting (i.e., using mobile battery packs) would occur within the solar field during the operational phase for maintenance of equipment and semi-annual panel washing. Nighttime maintenance activities would be performed in accordance to applicable County of Los Angeles standards for temporary nighttime lighting requirements. As a result, the Project would not be anticipated to adversely impact nighttime views in the Project area. No potentially significant impacts would be expected to occur. While Project impacts are

expected to be less than significant, implementation of Mitigation Measure 5.10-3, which requires that building and appropriate equipment be painted with non-reflective paint and neutral colors, would further minimize the Project effects.

Off-site Transmission Line. The proposed transmission line would not include any new sources of substantial light or glare during operational phases. The poles do not have reflective surfaces or the potential for glint/glare, as shown Figure 5.10-14, which depicts a representative view of the transmission line and pole proposed for the 230-kV transmission line. Additionally, no nighttime lighting is proposed for security or maintenance purposes associated with the proposed off-site transmission line. No potentially significant glint and glare or nighttime lighting impacts would occur associated with operation of the off-site transmission line.

5.10.3.5.6 Criteria 6: Have a substantial adverse effect on scenic vistas or substantially degrade the existing visual character or quality of the project sites and their surroundings?

Construction.

Facility Site. The Project site area is not located within a plan-designated scenic vista. However, as mentioned in Section 5.10.2.3, the Project site is located in a visual environment offering panoramic views of open land consisting of the valley of flat desert land and distant views of the surrounding mountain ranges; thus displays certain characteristics of being located in a scenic vista. Several scenic features are present in the Project region, including the AVCPR, Desert Woodland Park, and Fairmont/Antelope Buttes. The Project area and vicinity is largely vacant, with substantial areas of agricultural uses, and presence of infrastructure (i.e., power lines and roadways) and rural residential uses. Based on these characteristics, the Project area is considered to have a moderate level of visual quality. As described previously, construction of the Project site would present temporary negative aesthetic elements that would directly affect foreground views. However, as shown in simulations from scenic viewing locations (i.e., Figure 5.10-9 from the AVCPR and Figure 5.10-11 from the Desert Woodland Park) in the Project vicinity that would be considered to have middleground views, the Project site is largely obscured. Construction activity-related visual impacts would be temporary and would not be considered substantial, such that construction of the Project site would not result in significant impacts to scenic vistas.

Due to the low to moderate profile of the construction equipment and temporary nature of the activities proposed, construction of the site would not be expected to substantially diminish the visual quality (i.e., vividness, intactness, and unity) of the Project site from areas of high viewer exposure such as motorists travelling along SR-138 and, to a lesser extent, 170th

Street West. As a result, construction activities at the Project site would not be expected to result in substantial impacts to visual quality.

As addressed previously in Criteria 4 (Section 5.10.3.5.4), which pertains to impacts to scenic character, construction activities at the site would not maintain the existing visual character of the landscape; however, due to the temporary nature of the activities, construction impacts are expected to result in less than significant impacts to visual character.

Off-site Transmission Line. Similar to the Project site, the transmission line route traverses an area of moderate level of visual quality, consisting of open areas, distant and panoramic views to mountains, substantial agricultural use, and areas of infrastructure (including existing power lines) and residential use. Construction of the transmission line route would not dominate views from the AVCPR or Desert Woodland Park, but may make viewers conscious of increased development. As a result, the transmission line construction would be expected to result in less than significant impacts to scenic vistas.

The visual quality and visual character along the transmission line route would be temporarily disrupted during construction of the line; however, due to the brief and transient nature of the construction activities along 170th Street West, transmission line construction impacts would be considered less than significant. Additionally, while these impacts are less than significant, implementation of Mitigation Measure 5.10-2 would help ameliorate the effects.

Operation.

Facility Site. As discussed previously, the Project site is not located within a plan-designated scenic vista. However, the Project visual environment offers panoramic views of flat desert land and distant mountains, and several scenic features (AVCPR, Desert Woodland Park, and Fairmont/Antelope Buttes). Conversely, the Project area also includes substantial areas of agricultural production, presence of infrastructure (i.e., power lines and roadways) and rural residential uses. Therefore, the Project area is considered to have a moderate level of visual quality. As discussed previously, operation of the Project would result in less than significant effects to background, middle-ground, and foreground views. As a result, the Project facility would not be expected to result in substantial impacts to visual quality.

As shown in simulations from scenic viewing locations (i.e., Figure 5.10-9 from the AVCPR and Figure 5.10-11 from the Desert Woodland Park), the Project site is largely obscured from the viewing locations, such that the presence of the built facility would result in a less than significant impact to these scenic locations. Additionally, due to the Project facility's general low relief, the Project site would not substantially obstruct or block views into the distance from foreground views (Figures 5.10-5 and Figure 5.10-7). As a result, development of the

proposed solar facilities at Project site would be anticipated to result in less than significant impacts to scenic vistas.

As addressed previously in Criteria 4 (Section 5.10.3.5.4), which relates to impacts to scenic character, the Project is expected to result in less than significant impacts to visual character.

Off-site Transmission Line. As discussed previously, the transmission line route is not located within a plan-designated scenic vista. The transmission line route generally follows 170th Street West, and includes views of desert land and distant mountains, and is also adjacent to and in the vicinity of substantial agricultural uses and developed infrastructure, including existing power lines and the SCE transmission corridor. Several residences are located in the vicinity of the transmission line route. Therefore, the Project area for the transmission line is considered to have a moderate level of visual quality. The presence of the new transmission line generally following 170th Street West would result in certain negative aesthetic elements affecting foreground views, and the value of the visual quality along the route would be reduced. However, as a result of the low viewer exposure to foreground views and the presence of power lines serving the existing residences along 170th Street West and the multiple existing high-voltage transmission lattice tower structures (SCE 230- and 500-kV lines), the transmission line would not be expected to result in substantial impacts to visual quality.

Views from scenic areas (AVCPR and the Desert Woodland Park) would not be affected by the off-site transmission line to the north of the Project site, and the addition of Project transmission lines would not block views to distant mountains.

In summary, the presence of the off-site transmission line generally following 170th Street West over the life of the Project would be expected to result in less than significant impacts to aesthetic resources.

5.10.3.5.7 Indirect Impacts. There are no anticipated indirect impacts to visual resources caused by the proposed Project.

5.10.4 Cumulative Impacts

Potential cumulative projects are identified in Section 4.6. Multiple projects are identified in the Project region, which have the potential to result in cumulative impacts to aesthetics when considered together with the proposed Project. Several applications for additional renewable energy projects have recently been submitted that will potentially take advantage of the energy transmission infrastructure that is planned in the area. The energy development proposed around the planned SCE Whirlwind Substation and the associated SCE Tehachapi Renewable Transmission Project is likely to combine with the proposed Project to introduce a large amount of scale dominant industrial features to the rural area in southern Kern

County. This is likely to permanently change the current, almost exclusively rural character of the general Project area through incremental increases in renewable industrial development. In conjunction with the proposed Fairmont Butte Motorsports Park, which also has scale dominant features, the existing character of the viewshed in the Antelope Valley in northern Los Angeles County would be altered by harder surfaces, unnatural lines and urban colors. This raises the potential for adverse effects to visual quality.

Two master-planned developments (i.e., Centennial Specific Plan and Gorman Post Ranch) have been identified in the western Los Angeles County area as part of the Project's cumulative scenario. Development of these communities would increase the population in the Antelope Valley and the potential number of travelers along SR-138, which may increase the viewer exposure to the Project site. From a cumulative visual impact perspective however, it is unlikely that residents living in these potential developments would base their choice of residence on the visual appearance of the Project site, which is over 12 miles east of the nearest development. For this reason, it is expected that the future residents at the planned developments would not have a high viewer expectation of the Project site.

Due to the extent of proposed development in the Project vicinity, cumulative effects to aesthetics resulting from the combination of these large scale manmade developments could be significant depending on which projects are approved and built as well as their locations and appearance. It is anticipated that the majority of these potential energy-related projects would occur north of the proposed AV Solar Ranch One Project in Kern County and would be further removed from the AVCPR and the Desert Woodland State Park. Direct visual impacts associated with implementation of the proposed Project have been determined to be less than significant in this Draft EIR relative to the significance criteria utilized in the analysis. The proposed Project's incremental effects on visual quality would not be expected to be cumulatively considerable or significant for any of the significance criteria used in the visual quality assessment.

5.10.5 Mitigation Measures

Although no significant Project impacts to aesthetic resources have been identified, the following visual resource mitigation measures shall be implemented to ameliorate less-than-significant construction and operation phase impacts further.

Mitigation Measure (MM) 5.10-1: Visual Screening During Construction. Prior to any construction activity within the vicinity of SR-138, temporary screening of construction and staging areas (e.g., via vegetation, or fencing with fabric or slats) shall be installed to minimize visual effects from construction as required by LACDRP.

MM 5.10-2: Construction Housekeeping. During construction, the development site shall be maintained. The Project facility construction site and off-site transmission line route work areas shall be kept clean of debris, trash, or waste.

MM 5.10-3: Building and Equipment Paint. All proposed on-site structures and appropriate equipment shall be neutral colors and non-reflective, as approved by the LACDRP.

MM 5.10-4: Screening Vegetation Landscaping Plan and Maintenance. Prior to issuance of a grading permit, the Applicant shall submit a landscaping plan for the 10-foot-wide strip of Project screening vegetation proposed along both sides of SR-138, to the LACDRP for review and approval. The Plan shall be certified by a registered landscape architect, and shall identify use of temporary irrigation, and the areas on both sides of SR-138 at the Project site to be planted with Joshua trees and/or other native yucca species, and native shrub species, in compliance with the County Drought-Tolerant Landscaping Ordinance. The landscaping shall be installed within 14 months of the commencement of construction activities. The vegetation shall be maintained via selective thinning and removal of invasive weeds and monitored thereafter to promote successful, long-term establishment of the native vegetation to the satisfaction of LACDRP. The landscaped area shall also be maintained free of trash and debris for the Project lifetime to the satisfaction of LACDRP.

MM 5.10-5: Maintenance of SR-138 Caltrans and County Easements. The areas on both sides of the existing Caltrans right-of-way for SR-138 offered for dedication in fee simple by the Applicant to Caltrans and the irrevocable 10-foot-wide slope easement on both sides of the 200-foot-wide Caltrans right-of-way offered to the County as described in Section 4.2 of this EIR shall be maintained free of trash and debris on an as-needed basis to the satisfaction of LACDRP. The dedicated area for Caltrans shall be maintained by Applicant until such time the deed for the applicable area is transferred to Caltrans, and the slope easement area for the County shall be maintained by the Applicant until such time that the County installs improvements.

5.10.6 Level of Significance after Mitigation

Project impacts would not exceed the significance thresholds in accordance with CEQA Guidelines. Potential impacts from the Project are anticipated to be less than significant for both the AV Solar Ranch One Facility and off-site transmission line during both the construction and operational phases. Recommended mitigation measures would further diminish impacts during construction and operation.

5.10.7 References

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URS. 2009. Traffic Impact Analysis. Traffic counts performed in December 2008.

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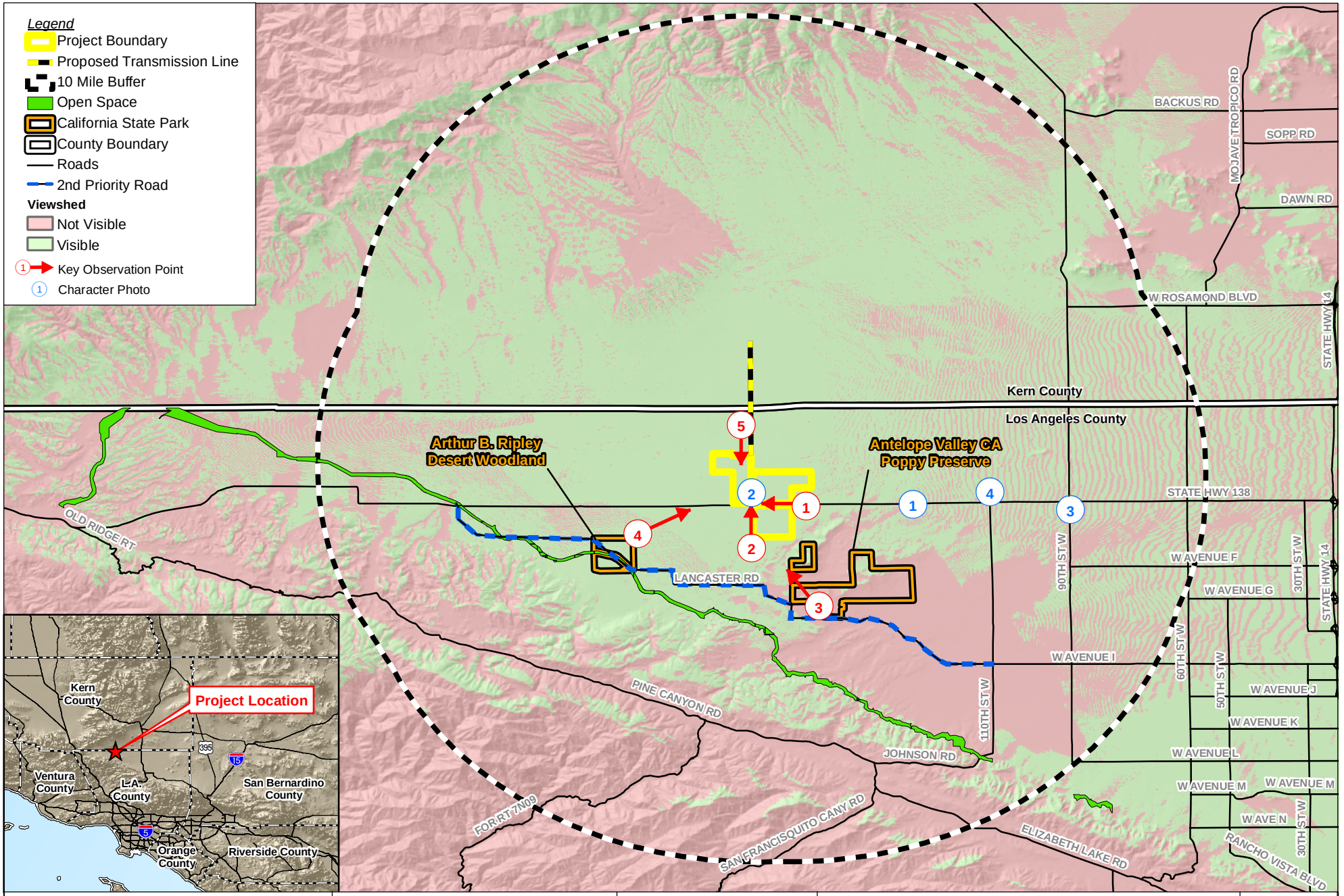
Legend
Project Boundary
Proposed Transmission Line
10 Mile Buffer
Open Space
California State Park
County Boundary
Roads
2nd Priority Road
Viewshed
Not Visible
Visible
Key Observation Point
Character Photo
Arthur B. Ripley Desert Woodland
Antelope Valley CA Poppy Preserve
Kern County
Los Angeles County
BACKUS RD
SOPP RD
DAWN RD
MOJAVE TROPICO RD
W ROSAMOND BLVD
STATE HWY 14
STATE HWY 138
OLD RIDGE RT
LANCASTER RD
PINE CANYON RD
JOHNSON RD
FOR RT 7N09
SAN FRANCISQUITO CANY RD
ELIZABETH LAKE RD
RANCHO VISTA BLVD
90TH ST W
110TH ST W
60TH ST W
50TH ST W
30TH ST W
W AVENUE F
W AVENUE G
W AVENUE I
W AVENUE J
W AVENUE K
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W AVE N
Project Location
Kern County
Ventura County
L.A. County
San Bernardino County
Orange County
Riverside County
N
1:255,130
0 1 2 3 4 5 Miles
Source:
ESRI (County Boundaries, Roads 2008);
Next Liight (project features 2009).
AV Solar Ranch One EIR
Figure 5.10-1A. VISUAL SPHERE OF INFLUENCE
2010
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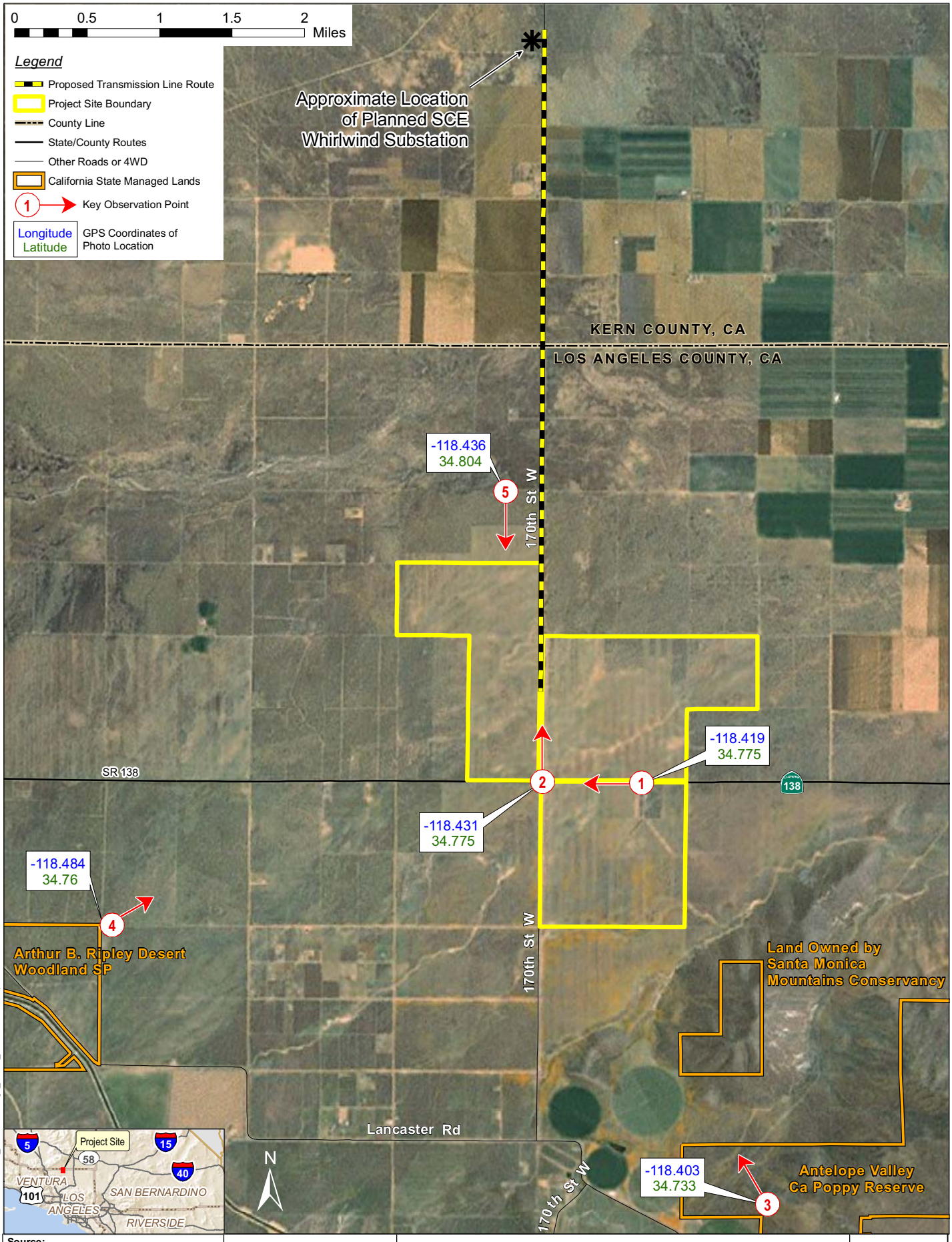

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Source:
[1] I-cubed Nationwide Prime - Aerials Express (2007-02-15 image date, 0.3m resolution), [3] LA County General Plan(1986), [4] Antelope Valley Area Wide General Plan (1986), Accessed February 2009: http://planning.lacounty.gov/gis/data.

AV Solar Ranch One EIR

Figure 5.10-1B. KOP LOCATION AERIAL MAP

2010

Photo1. View looking east toward existing SCE transmission corridor

Photo 2. View looking east along SR-138 at 170th Street West

Source: Digital Preview 2009	**AV Solar Ranch One EIR**	**Figure 5.10-2.** CHARACTER PHOTOS 1 AND 2	2010

Photo 3. View looking west from 90th Street West and 110th Street West from vicinity of SR-138

Photo 4. View looking west from 90th Street West and 110th Street West from vicinity of SR-138

Source: Digital Preview 2009	**AV Solar Ranch One EIR**	**Figure 5.10-3.** CHARACTER PHOTOS 3 AND 4	2010

T/Ladd/NextLight/ADEIR#3/VisualQualities/709-130

KOP #1 - Existing view of traveler moving west along State Highway 138

Source: Digital Preview 2009	**AV Solar Ranch One EIR**	**Figure 5.10-4.** KOP #1	2010

T/Ladd/NextLight/ADEIR#3/VisualQualities/709-131

KOP #1 - Simulated view of traveler moving west along State Highway 138

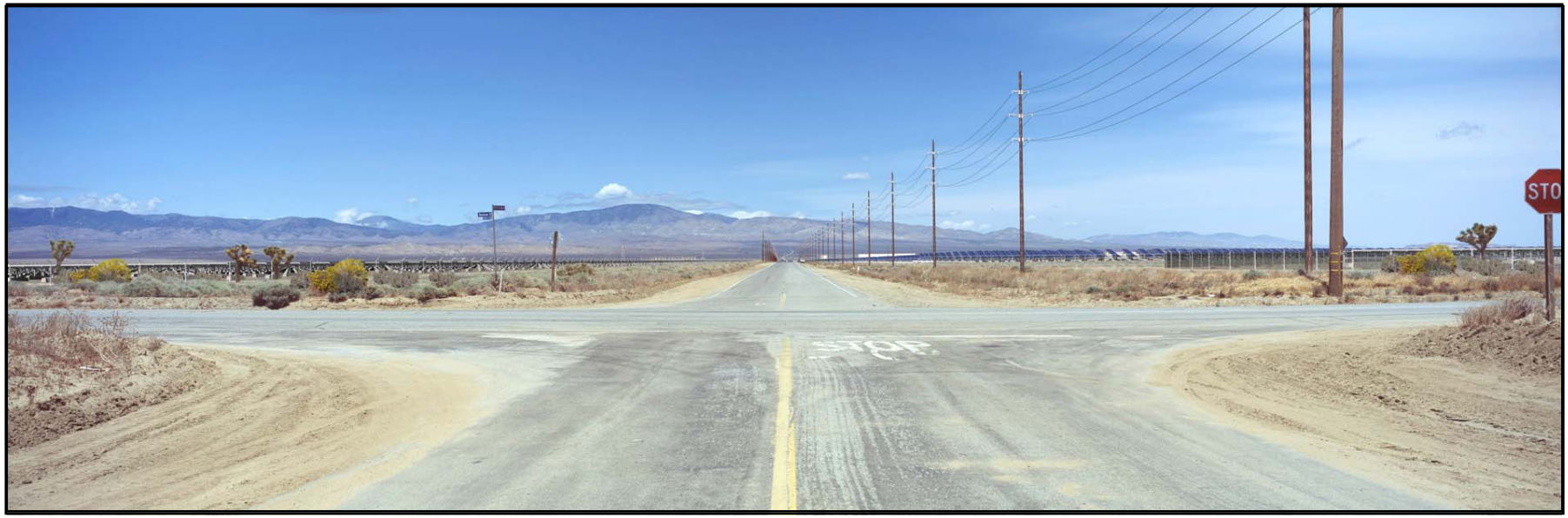
Source: Digital Preview 2010	**AV Solar Ranch One EIR**	**Figure 5.10-5.** SIMULATED VIEW OF KOP #1	2010

T/Ladd/NextLight/ADEIR#3/VisualQualities/709-132

KOP #2 - Existing view of traveler moving north along 170th Street West

Source: Digital Preview 2009	**AV Solar Ranch One EIR**	**Figure 5.10-6.** KOP #2	2010

T/Ladd/NextLight/ADEIR#3/VisualQualities/709-133



KOP #2 - Simulated view of traveler moving north along 170th Street West

Source: Digital Preview 2010	**AV Solar Ranch One EIR**	**Figure 5.10-7.** SIMULATED VIEW OF KOP #2	2010

T/Ladd/NextLight/ADEIR#3/VisualQualities/709-134

KOP #3 - Existing view of recreational user at Antelope Valley California Poppy Reserve

Source: Digital Preview 2009	**AV Solar Ranch One EIR**	**Figure 5.10-8.** KOP #3	2010

T/Ladd/NextLight/ADEIR#3/VisualQualities/709-135

KOP #3 - Simulated view from recreational user perspective at Antelope Valley California Poppy Reserve

Source: Digital Preview 2009	**AV Solar Ranch One EIR**	**Figure 5.10-9.** SIMULATED VIEW OF KOP #3	2010

T/Ladd/NextLight/ADEIR#3/VisualQualities/709-136

KOP #4 - Existing view of recreational user at Arthur B. Ripley Desert Woodland State Park

Source: Digital Preview 2009	**AV Solar Ranch One EIR**	**Figure 5.10-10.** KOP #4	2010

T/Ladd/NextLight/ADEIR#3/VisualQualities/709-137

KOP #4 - Simulated view of recreational user at Arthur B. Ripley Desert Woodland State Park

Source: Digital Preview 2009	**AV Solar Ranch One EIR**	**Figure 5.10-11.** SIMULATED VIEW OF KOP #4	2010

T/Ladd/NextLight/ADEIR#3/VisualQualities/709-138

KOP #5 - Existing view from representative residence location at 50800 172nd Street West

Source: Digital Preview 2009	**AV Solar Ranch One EIR**	**Figure 5.10-12.** KOP #5	2010

T/Ladd/NextLight/ADEIR#3/VisualQualities/709-139

KOP #5 - Simulated view from representative residence location at 50800 172nd Street West

Source: Digital Preview 2009	**AV Solar Ranch One EIR**	**Figure 5.10-13.** SIMULATED VIEW OF KOP #5	2010

T/Ladd/NextLight/ADEIR#3/VisualQualities/709-140

Source: Tri-Axis 2009	**AV Solar Ranch One EIR**	**Figure 5.10-14A.** REPRESENTATIVE VIEW OF TRANSMISSION POLE (SINGLE CIRCUIT)	2010

T/Ladd/NextLight/ADEIR#3/VisualQualities/709-140B

Note:
This photograph shows a typical 230 kV double circuit pole. The AV Solar Ranch One Project would only involve installation on one side of the pole (single circuit).

Source:
Tri-Axis
2010

AV Solar Ranch One EIR

Figure 5.10-14B. REPRESENTATIVE VIEW OF TRANSMISSION POLE (DOUBLE CIRCUIT)

2010

5.9 AGRICULTURAL RESOURCES

This section describes the agricultural resources that would be affected by AV Solar Ranch One Project (Project). The following discussion addresses existing environmental conditions in the affected area, and analyzes potential environmental impacts from Project construction and operation. In addition, existing laws and regulations relevant to agricultural resources are described. In some cases, compliance with these laws and regulations would serve to reduce or avoid certain impacts that might otherwise occur with the implementation of the Project.

5.9.1 Regulatory Setting

5.9.1.1 Federal

No applicable agriculture-related federal laws, regulations, or statutes were identified pertaining to the Project.

5.9.1.2 State

5.9.1.2.1 California Department of Conservation Farmland Mapping and Monitoring Program. The California Department of Conservation (CDOC) administers the Farmland Mapping and Monitoring Program (FMMP), which was established in 1982 to continue the Important Farmland mapping efforts begun in 1975 by the U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS). FMMP has the purpose to provide data for use in planning the present and future of California's agricultural land resources, and applies the NRCS soil classifications to identify agricultural lands and designations. The CDOC has a minimum mapping unit of 10 acres, with smaller than 10-acre parcels being absorbed into the surrounding classifications.

The list below provides a comprehensive description of all the categories mapped by the CDOC.

Prime Farmland. Farmland that has the best combination of physical and chemical features able to sustain long-term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date to qualify as "Prime Farmland."

Farmland of Statewide Importance. Farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.

***Unique Farmland*.** Farmland of lesser quality soils used for the production of the State's leading agricultural crops. This land is usually irrigated, but may include non-irrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the four years prior to the mapping date. Unique Farmland also excludes abandoned orchards.

***Farmland of Local Importance*.** Land of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee.

***Grazing Land*.** Land on which the existing vegetation is suited to the grazing of livestock. This category was developed in cooperation with the California Cattlemen's Association, University of California Cooperative Extension, and other groups interested in the extent of grazing activities. The minimum mapping unit for Grazing Land is 40 acres.

***Urban and Built-up Land*.** Land occupied by structures with a building density of at least 1 unit to 1.5 acres, or approximately 6 structures to a 10-acre parcel. This land is used for residential, industrial, commercial, institutional, public administrative purposes, railroad and other transportation yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, water control structures, and other developed purposes.

***Other Land*.** Land not included in any other mapping category. Common examples include low density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry or aquaculture facilities; strip mines and borrow pits; and water bodies smaller than 40 acres. Vacant and nonagricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land.

5.9.1.2.2 Government Code Section 51200 *et seq.*, California Land Conservation Act (Williamson Act). The California Land Conservation Act of 1965, commonly referred to as the Williamson Act enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space uses in return for reduced property tax assessments. Private land within locally designated agricultural preserve areas is eligible for enrollment under Williamson Act contracts.

The Williamson Act program is administered by the CDOC in conjunction with local governments, which administer the individual contract arrangements with landowners. The landowner commits the parcel to a 10-year period wherein no conversion out of agricultural use is permitted. Each year the contract automatically renews unless a notice of non-renewal or cancellation is filed. In return, the land is taxed at a rate based on the actual use of the land for agricultural purposes, as opposed to its unrestricted market value. Participation in the

Williamson Act program is dependent on county adoption and implementation of the program and is voluntary for landowners (CDOC 2007).

While the Williamson Act requires cancellation of any development that is not agricultural based, the Williamson Act allows electric power generation as a compatible use, as stated in Section 51238:

Section 51238(a)(1). Notwithstanding any determination of compatible uses by the county or city pursuant to this article, unless the board or council after notice and hearing makes a finding to the contrary, the erection, construction, alteration, or maintenance of gas, electric, water, communication, or agricultural laborer housing facilities are hereby determined to be compatible uses within any agricultural preserve.

Section 51238(a)(2). No land occupied by gas, electric, water, communication, or agricultural laborer housing facilities shall be excluded from an agricultural preserve by reason of that use.

5.9.1.3 Local

5.9.1.3.1 Los Angeles County General Plan. No applicable agricultural policies, goals, or implementation measures were identified in the Los Angeles County General Plan that are pertinent to the Project.

5.9.1.3.2 Antelope Valley Areawide General Plan.

Policy Statement 28. Within designated "Agricultural Opportunity Areas," carefully evaluate extension of urban and suburban uses (outside the urban areas and the rural communities) for its impact on adjacent agricultural operations.

Policy Statement 142. Encourage the continued production of existing agricultural lands within the Antelope Valley.

5.9.1.3.3 Kern County. No applicable agricultural policies, goals, or implementation measures were identified in the Kern County General Plan or the Willow Springs Specific Plan that are pertinent to the Project.

5.9.2 Environmental Setting

5.9.2.1 Project Site

The Project is located in the Antelope Valley, which is characterized with a high desert climate environment on the western edge of the Mojave Desert. The Project site is located within the Antelope Valley Planning Area, which contains the largest amount of productive

farmland in Los Angeles County. Agricultural uses comprise about 62,772 acres (approximately 40 percent) of land currently in use in the Antelope Valley Planning Area; however, agricultural productivity in the Planning Area has been historically and is currently limited by water costs and climatic conditions. Agricultural uses in the Planning Area are grazing lands, alfalfa, orchards for stone fruits, and vineyards (LACDRP 2009).

Presently, the Los Angeles County Farm Bureau, which is a non-profit organization dedicated to the support and preservation of agriculture throughout Los Angeles County, has identified major farming issues which may limit the overall potential of growth in the agriculture industry. These issues pertain to water availability, provisions to allow for agricultural burns (benefits farming efforts), environmental protection, and groundwater quality (Los Angeles County Farm Bureau 2008).

The Project site was used for agricultural purposes dating back to at least the 1950s, and was farmed continuously until 1995. Based on communications with the previous property owner (Larsen 2009), historic crops included barley, wheat, alfalfa, and onions. The last irrigated farming activity occurred in 2004 for a crop of onions, on 80 acres south of the residential farmhouse. According to the most recent CDOC FMMP data, which represents farmland assessments from 2008 of the approximate 2,100 acres of the Project site, 10.8 acres were classified as Prime Farmland, 1735.1 acres were Farmland of Local Importance, and 324.3 acres were Grazing Land (CDOC 2009). The balance of the site (approximately 30 acres) is considered to be "other" land. Currently the Antelope Valley Planning Area does not contain any lands designated as Farmland of Statewide Importance or lands that have entered into Williamson Act contracts (LACDRP 2009).

The 10.8 acres classified as Prime Farmland by the CDOC FMMP data is adjacent to and south of the existing ranch house. According to the previous owner (Larsen 2009), this area was planted with pistachio trees in 1975, irrigated for several years up to approximately 1978, and then abandoned due to lack of nut production. Therefore, this area has not met the criteria for designation as Prime Farmland since the early 1980s.

The Antelope Valley Areawide General Plan identifies the Project site to be located in an Agricultural Opportunity Area, which identifies major areas which are either in agricultural use or which have a history of such uses. Plan policy calls for these areas to be protected from incompatible uses. Applications for non-agricultural uses in these areas will be evaluated for their impact on adjacent agricultural operations.

5.9.2.2 Off-site Transmission Line Route

The proposed off-site transmission line traverses approximately 1.5 miles in Los Angeles County (Antelope Valley Planning Area) and 2 miles in Kern County within, or on private lands adjacent to, the 170th Street West public road right-of-way (ROW). In Los Angeles

County, the Project off-site transmission line route traverses approximately 0.25 mile of Farmland of Local Importance, and 1.25 miles Grazing Land (CDOC 2009).

In Kern County, the proposed transmission route traverses through the Willow Springs Specific Plan Area. The Willow Springs Specific Plan Area is an open, undeveloped area consisting of desert flora and agriculture. Onions, sugar beets, carrots, and alfalfa are predominantly grown commercially in the region, and water availability for agricultural uses imposes a constraint to development. Soils best suited for agriculture are generally south of Rosamond Boulevard and west of 80th Street West (33 square miles). This area is predominantly used for agriculture (KCPD 2008). Based on the most recent FMMP data, Kern County contains 640,039 acres Prime Farmland (CDOC 2007). The off-site transmission line route crosses the following FMMP categorized lands: approximately 2 miles of Prime Farmland, 0.10 mile Grazing Land, and the balance in Non-agricultural and Natural Vegetation categories (refer to Figure 5.9-1). Refer to Figures 4.3-4A and 4.3-4B for the tentative transmission line route and pole locations within the specified study area.

The proposed transmission line route would traverse one approximately 318.2-acre parcel (Assessors Parcel Number 261-19-008) under Williamson Act contract for approximately 0.5 mile in Kern County, from Kingbird Avenue to Gaskell Road (refer to Figure 5.9-1).

5.9.3 Project Impacts

5.9.3.1 Methodology and Significance Criteria

In accordance with CEQA, impact analyses were conducted regarding the significance of each identified impact that would result from the proposed Project. The following agricultural resources significance criteria were derived from the LACDRP thresholds of significance, which are based on the CEQA Guidelines Appendix G. Impacts of the proposed Project would be considered potentially significant and require mitigation if the Project:

- Converts Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency to non-agricultural use
- Conflicts with existing zoning for agricultural use, or a Williamson Act contract
- Involves other changes to the existing environment that due to their location or nature, could result in conversion of Farmland, to non-agricultural use

5.9.3.2 Impact Analysis

5.9.3.2.1 Criteria 1: Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency to non-agricultural use?

***Facility Site*.** As currently mapped under 2008 data from the CDOC FMMP, the Project site is characterized to contain 10.8 acres of Prime Farmland (CDOC 2009). The CDOC states that Prime Farmland "must have been used for irrigated agricultural production at some time during the four years prior to the mapping date." The area considered as Prime Farmland according to the CDOC FMMP 2008 data designates the location of the previous pistachio orchard, which was last irrigated in approximately 1978, and had never cropped (i.e., never produced pistachios). Los Angeles County defines "Farmland of Local Importance" to be "producing lands that would meet the standard criteria for Prime or Statewide but are not irrigated" (CDOC 2004). Based on the CDOC criteria and the County's adopted definition, the 10.8 acre area, which was last irrigated in 1978, was incorrectly designated as Prime Farmland in the CDOC 2006 data. The abandoned pistachio orchard would instead qualify as Farmland of Local Importance. The Project site does not contain Unique Farmland or Farmland of Statewide Importance. As a result, construction and operation of the proposed solar facility on the Project site would not be expected to convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. Impacts would be less than significant.

***Off-site Transmission Line*.** The 230-kV transmission line would include a total of approximately 46 tubular steel poles located within, or on private lands adjacent to, the public road ROW of 170th Street West. An estimated 22 of the poles are located within Los Angeles County, and do not cross Farmland (i.e., Prime Farmland, Unique Farmland, or Farmland of Statewide Importance). The remaining 24 poles are located in Kern County. Of these, an estimated 18 poles and their respective access pathways are located on areas designated as Prime Farmland. Additionally, 4 stringing locations would be needed during construction, which are located within designated Prime Farmland areas (Figure 4.3-3). The portion of the transmission line route in Kern County includes an expanded study area (typically within approximately 200 feet of 170th Street West). The conditions within the expanded study area relative to agricultural resources are generally the same regardless of location within the study area. No Unique Farmland or Farmland of Statewide Importance would be affected by the transmission line route.

During construction, installation of each transmission line pole would require approximately 1 to 2 days, and the construction work area at each pole, including access pathways from the road shoulder of 170th Street West would temporarily occupy an area of approximately 50

feet by 100 feet (5,000 square feet) for each pole. The total area of temporary disturbance to Prime Farmland from transmission line construction is approximately 91,235 square feet or 2.1 acres. The four proposed conductor stringing locations in Kern County are approximately 50 feet by 200 feet each, and would result in a total temporary disturbance of 40,000 square feet, or 0.9 acre. Following the temporary construction activities the disturbed areas would be returned to agricultural use, with the exception of the area occupied by the transmission line pole and associated foundation. Transmission line maintenance activities over the life of the Project would typically consist of annual visual inspections and periodic washing of insulators at pole locations through use of the 20-foot-wide access paths, on an as needed basis. These activities would be infrequent and transient in nature, and would not normally require removal of vegetation. These activities would not preclude long-term agricultural production on the access pathways. However, vehicular travel would have the potential to damage crops within the access pathways, as applicable. It is expected that any damaged crops would be replaced or compensated at the Applicant's cost and impacts would be less than significant.

Conductor (transmission line) clearances for underlying vegetation would be maintained in accordance with California Public Utilities Commission (CPUC) General Order (GO) 95 (Rules for Overhead Electric Line Construction). The minimum conductor-to-ground clearance for the proposed 230-kV transmission line designs is 30 feet (or higher depending on pole type) as shown on Figure 4.4-6. Maintenance of minimum conductor-to-vegetation clearance distances (10 feet minimum) would require limited, if any, infrequent trimming of vegetation to meet CPUC GO 95 requirements. Since the agricultural areas along the transmission line route are generally flat and vegetation in the transmission route study area generally does not approach 20 feet in height, minimal, if any, vegetation trimming would be required and potential impacts to important farmlands would be less than significant.

The proposed transmission line would cause a permanent disturbance to the areas encompassed by the pole concrete foundations and access paths, where each pole location (proposed within the Prime Farmland areas) would require a foundation area of approximately 50 square feet, and an access road with a conservatively estimated average area of 2,000 square feet. In total, the proposed transmission line would result in a maximum permanent disturbance to 36,000 square feet (0.83 acre) of designated Prime Farmland. The transmission line's permanent disturbance would represent 0.0001 percent of the total Prime Farmland in Kern County (640,039 acres). This amount of permanent disturbance is considered negligible; therefore, the proposed off-site transmission line would result in a less than significant impact to convert important farmland, including Prime Farmland.

5.9.3.2.2 Criteria 2: Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?

***Facility Site*.** The proposed Project site is located within the Los Angeles County General Plan zoning district designation Heavy Agriculture (A-2). According to LACDRP, a solar energy general facility is considered an equivalent use as an electric generating plant. Based on the Los Angeles County Zoning Code (January 13, 2009), electric generating plants and transmission substations are allowed in Zone A-2 with issuance of a conditional use permit (CUP) (Chapter 22.24.150[A]). Additionally, the proposed Project site is not under Williamson Act contract. As a result, construction and operation of the proposed Project would not conflict with existing zoning for agricultural use or a Williamson Act contract. Impacts would be less than significant.

***Off-site Transmission Line*.** The off-site transmission line would be located within, or on private lands adjacent to, the 170th Street West public road ROW. As addressed in Section 5.16, Land Use, impact analysis for zoning consistency, the transmission line is determined to be a compatible use with the agricultural zoned areas located adjacent to the public road ROW in Los Angeles County and Kern County. As a result, the proposed transmission line would not conflict with zoning designations in Los Angeles County (Light Agriculture [A-1] and Heavy Agriculture [A-2]) and Kern County (Exclusive Agriculture [A]).

According to the proposed transmission line route shown on Figures 4.3-4A and 4.3-4B, approximately 5 transmission line poles are located on an approximately 318.2-acre parcel under Williamson Act contract, between Kingbird Avenue to Gaskell Road.

As identified in Section 5.9.1.2.2, the Williamson Act allows electric power generation as a compatible use "notwithstanding any determination of compatible uses by the county…", as stated in the Williamson Act Section 51238. As such, Kern County is authorized to review certain power generation projects such as the proposed Project for compatibility on Williamson Act contracted lands. Section 51238.1(a) of the Williamson Act contains the principles for determining compatibility of other uses with agriculture in Williamson Act contracted lands. The following analyzes the applicable portion of the proposed transmission line (see Figure 5.9-1, FMMP and Williamson Act Contract Lands) with respect to the principles listed in Government Code Section 51238.1(a):

(1) The use will not significantly compromise the long-term productive agricultural capability of the subject contracted parcel or parcels or on other contracted lands in agricultural preserves. In the long term, the proposed five (5) transmission poles and access paths would occupy a total permanent footprint of 10,250 square feet (0.24 acre) of the approximately 318.2-acre parcel. The presence of the transmission poles would not preclude the agricultural capability

of the contracted parcel, and represents an insignificant portion (i.e., 0.07 percent) of the parcel that would be removed from agricultural use.

(2) The use will not significantly displace or impair current or reasonably foreseeable agricultural operations on the subject contracted parcel or parcels or on other contracted lands in agricultural preserves. As stated above, the proposed five (5) transmission poles would not impair agricultural operations, and represent an insignificant portion of the contracted parcel.

(3) The use will not result in the significant removal of adjacent contracted land from agricultural or open-space use. No other contracted lands have been identified along or adjacent to the proposed transmission line route. The proposed five (5) transmission poles as well as the entire transmission line route would result in no removal of other contracted lands.

The Williamson Act provides that "electrical facilities" are compatible uses on agricultural land under contract (Gov. Code Section 51238(a)(1)). The proposed transmission line would be considered an electric facility. As analyzed above, the proposed installation of five (5) transmission poles would be compatible with the principles enumerated in Section 51238.1 of the Williamson Act, as the installation of the transmission poles would not significantly compromise, displace, or impair agricultural uses of the contracted parcel. Additionally, the proposed transmission line would not require cancellation of any Williamson Act contract (per Government Code Section 51238(a)(2)), and as described in Section 5.16 of this EIR, transmission line use is compatible with the Kern County zoning ordinance along the transmission line route, which further indicates compatibility between transmission line use and agricultural uses.

The EIR analysis provides a basis for a determination that proposed transmission line implementation would be compatible with the Williamson Act. Mitigation Measure 5.9-1, Transmission Line Williamson Act Review (Kern County), requires that the proposed transmission line within the Williamson Act contracted parcel be approved by Kern County prior to construction. As analyzed above, the proposed transmission line is expected to be a compatible use with the Williamson Act program, and would not result in cancellation of the Williamson Act contracts. As a result, the impact on Williamson Act contract land is considered less than significant.

5.9.3.2.3 Criteria 3: Would the project involve other changes to the existing environment that due to their location or nature, could result in conversion of Farmland, to non-agricultural use?

***Facility Site*.** The Project site is located within a LACDRP Agricultural Opportunity Area. The Antelope Valley Areawide General Plan policy states that these areas should be

protected from incompatible uses. The Project site would generate electrical power through renewable solar PV technology which is an allowable use with a CUP. The proposed Project would involve conversion of land that was formerly used (more than 5 years ago) for agricultural production to renewable energy production. Construction and operation of the Project site would not involve other restrictions, obstructions, or resources that could result in conversion of Farmland to non-agricultural use.

***Off-site Transmission Line*.** The proposed off-site transmission line is a linear infrastructure that would be located within, or on private lands adjacent to, the public road ROW. Due to its linear nature, the transmission line would not result in changes to the existing land use patterns, including agricultural uses in the Project area. As a result, the transmission line would not be expected to result in changes that would result in conversion of Farmland to non-agricultural use.

5.9.3.2.4 Indirect Impacts. Construction and operation of the Project site would not involve impacts that would indirectly affect agricultural resources.

5.9.3.3 Indirect Impacts

The off-site transmission line is proposed to be located within, or on private lands adjacent to, the public road ROW along 170th Street West, which runs adjacent to or within current agricultural uses in the Project area. Since transmission line uses are considered compatible with agricultural uses, the Project transmission line would not be expected to directly or indirectly adversely impact agricultural uses.

5.9.4 Cumulative Impacts

The Project is located in a region with significant agricultural uses; however, the Antelope Valley has been historically and is currently also limited by water costs and climatic conditions. The proposed Project would result in the permanent conversion of 0.016 acre of Prime Farmland. This amount is considered negligible. The proposed Project would also result in the conversion of 2,100 acres of former (more than 5 years ago) agricultural land to renewable energy production, thereby precluding possible agricultural production for the planned life of the Project (30 years). The proposed Project would be expected to contribute to the overall trend of conversion of agricultural lands to other uses in the Antelope Valley when considered together with other potential cumulative projects in the area. Since the Project site has not been used for agricultural production for over 5 years, and because the Project would result in a negligible conversion of Farmland, the Project's incremental contribution to cumulative agricultural impacts is considered less than significant.

5.9.5 Mitigation Measures

Mitigation Measure 5.9-1: Transmission Line Williamson Act Review (Kern County). Prior to the construction of the proposed transmission line route within any Williamson Act contracted lands in Kern County, the Applicant shall submit a written site description, along with a plot plan of the proposed transmission line route within the contracted land to the Kern County Planning Department for review and approval.

5.9.6 Level of Significance after Mitigation

The Project's potential impacts to agricultural resources are considered less than significant. With implementation of Mitigation Measure 5.9-1, potential impacts to Williamson Act contract lands in Kern County associated with transmission line installation and operation would be expected to be less than significant (pending Kern County determination).

5.9.7 References

California Department of Conservation (CDOC), Division of Land Resource Protection. 2009. Los Angeles Important Farmland, 2008. September.

2008. Rural Mapping Edition, Kern County Important Farmland, 2006. November 2008.

2004. A Guide to the Farmland Mapping and Monitoring Program, 4th Edition. 2004.

Kern County Department of Planning and Development Services. 2008. Willow Springs Specific Plan. Adopted April 1, 2008.

Larsen, Kim. 2009. Larsen Ranch (previous property owner). Personal communication with URS Corporation (P. Menk). July 31, 2009.

Los Angeles County Department of Regional Planning (LACDRP). 2009. Antelope Valley Area Plan Update, Background Report. April 2009.

Los Angeles County Farm Bureau. 2008. Legislative Issues – California Farming Issues: Antelope Valley. 2008. Website accessed at http://www.lacfb.org/legislative.html on July 29, 2009.

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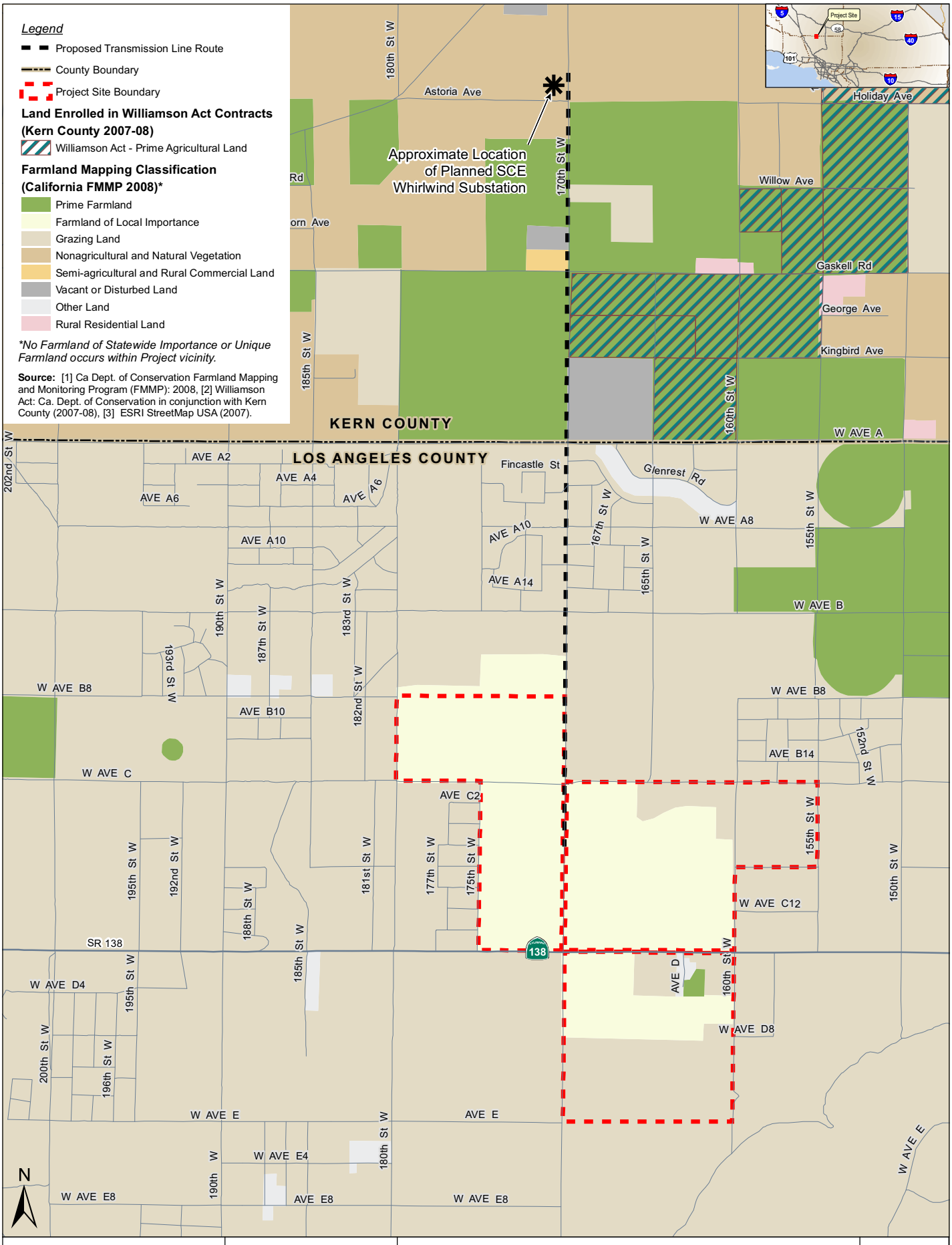
Legend
Proposed Transmission Line Route
County Boundary
Project Site Boundary
Land Enrolled in Williamson Act Contracts (Kern County 2007-08)
Williamson Act - Prime Agricultural Land
Farmland Mapping Classification (California FMMP 2008)*
Prime Farmland
Farmland of Local Importance
Grazing Land
Nonagricultural and Natural Vegetation
Semi-agricultural and Rural Commercial Land
Vacant or Disturbed Land
Other Land
Rural Residential Land
*No Farmland of Statewide Importance or Unique Farmland occurs within Project vicinity.
Source: [1] Ca Dept. of Conservation Farmland Mapping and Monitoring Program (FMMP): 2008, [2] Williamson Act: Ca. Dept. of Conservation in conjunction with Kern County (2007-08), [3] ESRI StreetMap USA (2007).
Approximate Location of Planned SCE Whirlwind Substation
KERN COUNTY
LOS ANGELES COUNTY
Project Site
Astoria Ave
Holiday Ave
Willow Ave
Gaskell Rd
George Ave
Kingbird Ave
Fincastle St
Glenrest Rd
W AVE A
AVE A2
AVE A4
AVE A6
AVE A10
AVE A14
W AVE A8
W AVE B
W AVE B8
AVE B10
AVE B14
W AVE C
AVE C2
W AVE C12
SR 138
W AVE D4
AVE D
W AVE D8
W AVE E
AVE E
W AVE E4
W AVE E8
180th St W
185th St W
190th St W
195th St W
200th St W
202nd St W
193rd St W
187th St W
183rd St W
182nd St W
181st St W
177th St W
175th St W
167th St W
165th St W
160th St W
155th St W
152nd St W
150th St W
192nd St W
188th St W
196th St W
N
0 2,000 4,000 Feet
0 0.5 1 Miles
AV Solar Ranch One EIR
Figure 5.9-1. FMMP FARMLAND AND WILLIAMSON ACT CONTRACT LANDS
2010
T:\NextLight_AV_EIR\deliverables\AVSR1_EIR\LandUse\Fig5_16-2_ExistingZoning.mxd

5.8 CULTURAL AND PALEONTOLOGICAL RESOURCES

This section describes the regulatory framework, environmental setting, and significance criteria, and analyzes the potential impacts to cultural resources associated with the proposed AV Solar Ranch One Project (Project). The potential impacts are described, assessed, and mitigation measures are proposed to reduce impacts. The cultural resources assessment includes consideration of the results of a Phase I cultural resource study that was performed in 2009 and 2010 (refer to Appendix F of this EIR). This section also addresses potential Project impacts to paleontological resources.

Research in support of this analysis was conducted at or with the South Central Coastal Information Center (SCCIC) at California State University Fullerton, the Southern San Joaquin Valley Information Center (SSJVIC) at California State University Bakersfield, the Natural History Museum of Los Angeles County (NHMLAC), and the Native American Heritage Commission (NAHC). This assessment included a review of published and unpublished literature.

5.8.1 Regulatory Setting

Federal laws, regulations and guidelines are not applicable to the proposed Project since it does not meet the definition of a federal undertaking (36 CFR § 800.16).

Summaries of State and local laws and regulations governing historic, archaeological, Native American, and paleontological resources that are potentially applicable to the proposed Project are provided below.

5.8.1.1 State

5.8.1.1.1 California Environmental Quality Act, 21084.1: "Historical Resource; Substantial Adverse Change." For the purposes of this section, a historical resource is a resource listed in, or determined to be eligible for listing in, the California Register of Historical Resources (CRHR). Historical resources as defined in subdivision (k) of Section 4020.1, and included as such in a local register, or deemed significant pursuant to criteria set forth in subdivision (g) of Section 5024.1, are presumed to be historically or culturally significant for purposes of this section, unless the preponderance of the evidence demonstrates that the resource is not historically or culturally significant. The fact that a resource is not listed in, or determined to be eligible for listing in, the CRHR, not included in a local register, or not deemed significant pursuant to criteria set forth in subdivision (g) of Section 5024.1 shall not preclude a lead agency from determining whether the resource may be a historical resource.

5.8.1.1.2 California Environmental Quality Act, 15064.5: "Determining the Significance of Impacts to Archeological and Historical Resources." For the purpose of this section, a resource shall be considered to be historically significant if it meets the criteria for listing on the CRHR (Public Resources Code [PRC] 5024.1, Title 14 California Code of Regulations (CCR), Section 4852), including the following:

- It is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
- It is associated with the lives of persons important in our past.
- It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
- It has yielded, or may be likely to yield, important information in prehistory or history.

An adverse effect on a cultural resource is defined as:

- A substantial adverse change in the significance of a historical resource by physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings; or
- A change that demolishes or materially alters those physical characteristics of a historical resource that convey its significance and that justify its inclusion in, or eligibility for inclusion in, the CRHR, or inclusion in a local register.

5.8.1.1.3 California Health and Safety Code, Section 7052. Section 7052 of the California Health and Safety Code establishes a felony penalty for mutilating, disinterring, or otherwise disturbing human remains, except by relatives.

5.8.1.1.4 California Penal Code, Section 622.5. Section 622.5 of the California Penal Code establishes a misdemeanor penalty for injuring or destroying objects of historical or archaeological interest located on public or private lands, but specifically excludes the landowner.

5.8.1.1.5 California Public Resources Code (PRC), Section 5097.5. Section 5097.5 of the California PRC establishes a misdemeanor penalty for the unauthorized disturbance or removal of archaeological, historical, or paleontological resources located on public lands.

5.8.1.1.6 California Register of Historical Resources. In 1992, the California Legislature established the CRHR. The CRHR is used as a guide by state and local agencies, private groups, and citizens to identify the state's historical resources and to indicate which properties are to be protected, to the extent prudent and feasible, from substantial adverse

change. The CRHR, as instituted by the California PRC, automatically includes all California properties already listed in the NRHP and those formally determined to be eligible for the NRHP (Categories 1 and 2 in the State Inventory of Historical Resources), as well as specific listings of State Historical Landmarks and State Points of Historical Interest. The CRHR also may include various other types of historical resources that meet the criteria for eligibility, including the following:

- Individual historic resources;
- Resources that contribute to a historic district;
- Resources identified as significant in historic resource surveys; and
- Resources with a significance rating of Category 3 through Category 5 in the State Inventory (Categories 3 and 4 refer to potential eligibility for the NRHP; Category 5 indicates a property with local significance).

5.8.1.1.7 Evaluation of Resources Less than 50 Years Old. A resource is usually considered for its historical significance after it reaches the age of 50 years. This threshold is not absolute; it was chosen as a reasonable span of time after which a professional evaluation of historical value/importance can be made. It has been determined that previously identified archaeological sites that occur on the Project site are not eligible for inclusion under the CRHR.

5.8.1.1.8 State Historic Resources Commission and the Office of Historic Preservation. In accordance with state law (California PRC Section 5020.4), the primary responsibility of the State Historic Resources Commission (SHRC) is to review applications for listing historic and archaeological resources on the NRHP, the CRHR, and the California Historical Landmarks and California Points of Historical Interest registration programs.

The Office of Historic Preservation (OHP) is the governmental agency primarily responsible for the statewide administration of the historic preservation program in California. The chief administrative officer for the OHP is the State Historic Preservation Officer (SHPO). The SHPO is also the executive secretary of the SHRC. The mission of the OHP and the SHRC, in partnership with the people of California and governmental agencies, is to preserve and enhance California's irreplaceable historic heritage as a matter of public interest so that its vital legacy of cultural, educational, recreational, aesthetic, economic, social, and environmental benefits will be maintained and enriched for present and future generations.

5.8.1.2 Local

5.8.1.2.1 Southern California Association of Governments. The Southern California Association of Governments (SCAG) Growth Management Chapter (GMC) has instituted

policies regarding the protection of cultural resources. SCAG GMC Policy No. 3.21 "encourages the implementation of measures aimed at the preservation and protection of recorded and unrecorded cultural resources and archaeological sites" (Southern California Association of Governments 2001).

5.8.2 Environmental Setting

5.8.2.1 Project Site

5.8.2.1.1 Paleontological Resources. Paleontology is a branch of geology that studies prehistoric life forms other than humans through the analysis of plant and animal fossils. Fossils are the remains of organisms that lived in the region in the geologic past; therefore, they preserve an aspect of Southern California prehistory that is of scientific importance, since many species are now extinct. Fossils are found embedded in geologic formations that range in thickness from a few feet to hundreds of feet. These formations form a complex relationship below the surface. Sedimentary formations are layered atop one another, and over time the layers have been squeezed, tilted, folded, and shaped by fault activity. Sensitive fossil-bearing formations found at the surface also may extend from just below the surface to many miles below the surface.

The entire proposed project area contains surficial exposures consisting of younger Quaternary Alluvium (Qa) derived primarily as fan deposits from the mountains to the southwest. These deposits are usually coarse and derived from igneous rocks, and they typically do not contain significant vertebrate fossils, at least in the uppermost layers.

Paleontological Resources Records and Literature Review. Dr. Samuel McLeod, Director of Vertebrate Paleontology at the Natural History Museum of Los Angeles County, conducted a paleontological records check for the proposed Project area on May 6, 2009. This search included a review of all recorded fossil records for locality and specimen data in the Museum's permanent paleontology collection records (Figure 5.8-1, Geology Map).

The results of the paleontological records check indicated that the entire Project area is comprised of a surficial fan deposit composed of Quaternary Alluvium. Since the deposits are derived mostly from igneous rocks, they typically do not contain significant vertebrate fossils, at least in the uppermost layers. The closest identified vertebrate fossil locations from these Quaternary deposits are:

- LACM 3722, situated north of the proposed Project area and found during excavation of a sewer line within the City of Tehachapi, that produced a specimen of fossil horse, *Equus*.

- LACM 5942-5953, situated in the Antelope Valley, located east of Palmdale (south-east of the project area) along Avenue S from Little Rock east. These localities were collected from the surface down to a depth of 10 feet during excavations for a pipeline. These deposits were located in younger Quaternary alluvium and older Quaternary sediments. These localities produced a fauna of small vertebrates including gopher snake, *Pituophis*, kingsnake, *Lampropeltis*, leopard lizard, *Gambelia wislizenii*, cottontail rabbit, *Sylvailagus*, pocket mouse, *Chaetodipu*s, kangaroo rat, *Dipodomys*, and pocket gopher, *Thomomys*.

5.8.2.1.2 Archaeological Resources. The Antelope Valley region was home to Native American population groups for at least 8,000 years. The native ecological environment consisted of a large basin surrounded by the San Gabriel Mountains and river and stream drainages which were prime locations for Native American food processing and village sites. Prehistoric archaeological sites are often covered by 3 or more feet of topsoil, often protecting sites even after an area has become highly urbanized, particularly in areas with shallow building foundations, parks, parking lots, and roads. However, prehistoric sites occasionally can be found on the surface in urbanized areas that have not been extensively disturbed. The following is a cultural chronology of the Native American habitation of Southern California. Noted Anthropologist William Wallace first developed this chronology in 1955. Since then, various chronologies suggested for several regions of California have been published. However, all of these regional chronologies were based on Wallace's version, with only minor changes. Wallace's 1955 chronology remains among anthropological and archaeological scholars as a standard cultural chronology for the prehistoric habitation of Southern California (Wallace 1955).

Cultural Chronology.

Prehistoric Period (Prior to 1542).

Early Man Horizon. From the end of the Pleistocene (approximately 11,000 years ago) to approximately 6,000 B.C., archaeological assemblages attributed to this horizon area were characterized by large projectile points and scrapers. The limited data available suggest that prehistoric populations focused on hunting and gathering, moving from region to region in small nomadic groups.

Milling Stone Horizon. This horizon is characterized by the appearance of hand-stones and milling-stones and dates between approximately 6,000 B.C. to 1,000 B.C. Artifact assemblages during the early Milling Stone period reflect an emphasis on plant foods and foraging subsistence systems. Inland populations generally exploited grass seeds, which became the primary subsistence activity. Artifact assemblages are characterized by choppers and scraper planes but generally lack projectile points. The appearance of large projectile

points in the latter portion of the Milling Stone Horizon suggests a more diverse subsistence economy.

Intermediate Horizon. Dated from 1,000 B.C. to A.D. 750, the Intermediate Horizon represents a period of transition for prehistoric Native American groups. Little is known about the people of this period, especially those occupying inland southern California. Archaeological site assemblages possess many attributes of the Milling Stone Horizon. In addition, however, these sites generally contain large stemmed (or notched) projectile points and portable mortars and pestles. It is believed that the mortars and pestles were used to harvest, process, and consume acorns. Given the general lack of data on the subsistence system and the cultural evolution of this period, the substrates representing the cultural behavior are not well understood.

Late Prehistoric Horizon. From A.D. 750 to Spanish contact in A.D. 1769, the Late Prehistoric Horizon reflects an increased technological sophistication and diversity. This period is characterized by the presence of small projectile points, which imply the use of bow and arrow, as opposed to spear. In addition, site assemblages also include steatite bowls, asphaltum, grave goods, and elaborate shell ornaments. Utilization of bedrock milling slicks is prevalent throughout this horizon. Also, an increase in hunting efficiency and widespread exploitation of acorns provided reliable and storable food resources. These innovations seem to have promoted greater sedentism.

Native American Population: The Tataviam and Kitanemuk.

The Tataviam. The Tataviam are a Native American group that resided in the area at the time of Spanish contact in the late 18th Century (Figure 5.8-2, California Tribal Area Map). The name "Tataviam" means, "People who Face the Sun." The Tataviam belong to the family of Serrano people who migrated down into the Antelope, Santa Clarita, and San Fernando Valleys some time before 450 A.D. (Solis 2008). They settled into the upper Santa Clara River Drainage. Some Tataviam settlements in the Santa Clarita and upper valleys were Nuhubit (Newhall); Piru-U-Bit (Piru); Tochonanga which is believed to have been located at the confluence of Wiley and Towsley Canyons; and the very large village of Chaguibit, the center of which is buried under the Rye Canyon exit of I-5. The Tataviam also lived where Saugus, Agua Dulce, and Lake Elizabeth are located today. The Serrano are part of the larger "Shoshonean" migration into southern California that occurred 2,000 to 3,000 (Ventura County Resource Conservation District 2005; Higgins 1996) years ago. The Tataviam people lived primarily on the upper reaches of the Santa Clara River drainage system, east of Piru Creek, but they also marginally inhabited the upper San Fernando Valley, including present day San Fernando and Sylmar (which they shared with their inland Tongva/Gabrieleño neighbors). The traditional Tataviam territory lies primarily between 1,500 and 3,000 feet above sea level. Their territory also may have extended over the

Sawmill Mountains to include at least the southwestern fringes of the Antelope Valley, which they apparently shared with the Kitanemuk who occupied the greater portion of the Antelope Valley. The Tataviam were hunters and gatherers who prepared their foodstuffs in much the same way as their neighbors. Their primary foods included yucca, acorns, juniper berries, sage seeds, deer, the occasional antelope, and smaller game such as rabbits and ground squirrels. There is no information regarding Tataviam social organization, though information from neighboring groups shows similarities among Tataviam, Chumash, and Gabrieleño ritual practices. Like their Chumash neighbors, the Tataviam practiced an annual mourning ceremony in late summer or early fall which would have been conducted in a circular structure made of reeds or branches. At first contact with the Spanish, the population of this group was estimated at less than 1,000 persons. However, this ethnographic estimate of the entire population is unlikely to be accurate, since it is based only on one small village complex and cannot necessarily be indicative of the entire population of Tataviam. Given the archaeological evidence at various Tataviam sites, as well as the numbers incorporated into the Spanish Missions, pre-contact population and early contact population easily exceeded 1,000 persons (Blackburn 1962; Johnston 1962).

The Tataviam people lived in small villages and were semi-nomadic when food was scarce. The Tataviam were hunter-gathers who were organized into a series of clans throughout the region. Jimsonweed, native tobacco, and other plants found along the local rivers and streams provided raw materials for baskets, cordage, and netting. Larger game was generally hunted with the bow and arrow, while snares, traps, and pits were used for capturing smaller game. At certain times of the year, communal hunting and gathering expeditions were held. Faunal resources available to the desert dwelling Serrano included deer, mountain sheep, antelope, rabbit, small rodents, and several species of birds (quail being their favorite). Meat was generally prepared by cooking in earth ovens, boiling, or sun-drying. Cooking and food preparation utensils consisted primarily of lithic (stone) knives and scrapers, mortars and metates, pottery, and bone or horn utensils. Resources available to the desert dwelling Tataviam included honey mesquite, piñon nuts, yucca roots, mesquite and cacti fruits.

These resources were supplemented with roots, bulbs, shoots, and seeds that, if not available locally, were traded for with other groups. Labor was divided between the sexes. Men carried out most of the heavy but short-term labor, such as hunting and fishing, conducted most trading ventures, and had as their central concerns the well being of the village and the family. Women were involved in collecting and processing most of the plant materials and basket production. The elderly of both sexes taught children and cared for the young (Kroeber 1953).

The Kitanemuk. The Kitanemuk belonged to the northern section of the Serrano. The name, "Serrano," however, is only a generic term meaning "mountaineers" or "those of the

Sierras." Ethnographers group the Kitanemuk with the Serrano based on linguistic similarities though the Kitanemuk did not identify themselves as Serrano (Kroeber 1925).

The Kitanemuk lived on the upper Tejon and Paso Creeks and also held the streams on the rear side of the Tehachapi Mountains, the small creeks draining the rear slope of the Liebre and Sawmill Range, with Antelope Valley and the westernmost part of the Mojave Desert. The extent of their territorial claims in the desert region is not certain.

The Kitanemuk lived in permanent winter villages of 50 to 80 people or more. During the late spring, summer, and fall months they dispersed into smaller, highly-mobile gathering groups. They followed a seasonal round, visiting different environmental regions as the important food producing plants became ready for harvest. Some staple foods important to the Kitanemuk include acorns and piñon (Antelope Valley Indian Museum n.d.) and yucca, elderberries, and mesquite beans were available as well (Duff 2004).

While travelling in the Antelope Valley in 1776, Spanish explorer and Franciscan priest Francisco Garcés encountered the Kitanemuk living in a communal tule house. His written account describes that dwelling as consisting of a series of individual rooms surrounding a central courtyard. Each room housed a family and its own door and hearth.

Garcés also relates that the Kitanemuk had extensive trade relations with sometimes distant groups. For example, he writes that the Kitanemuk traded with the "Canal" (Chumash of the Santa Barbara Channel region) and describes wooden vessels with inlays of haliotis shell that bore stylistic similarities to decorations found on the handles of Chumash knives and other objects (Kroeber 1925).

Historic Period. Spanish Exploration, Mexican Settlement, and American Occupancy Exploration of California first occurred in 1540 when a land expedition under the command of Hernando de Alarcon traversed inland along the Colorado River in an attempt to meet up with the party of Francisco Vasquez de Coronado, who was searching the Southwest for the legendary Seven Cities of Cibola (Gold). Two years later, Juan Rodriguez Cabrillo was commissioned by the Spanish government to investigate the western shores of the newly acquired territory. His investigation was restricted to the southern California coast, with only brief stops onshore to gather water and supplies. The first documented description of Los Angeles County comes from Juan Rodriguez Cabrillo in 1542. Apparently, his ship made land fall at what is today San Pedro, taking on fresh water and other supplies. He did not explore the area but sailed on (Beck and Haase 1974).

During the early decades of the 19th century, independence groups sprang up throughout the Spanish Empire. Like the American colonists, the citizens of these Spanish colonies thought it was time for self-rule and abolition of the Viceroy system. At that time, California was

considered a province of Mexico. Throughout the Spanish Period, California remained largely unsettled.

The first Spanish encounter with the Tataviam occurred when Gaspar de Portola's expedition arrived in Castaic Junction on August 8, 1769, on their way north from Los Angeles. It is recorded that the Tataviam gave the Spanish explorers food and ate with them. On September 8, 1797, Father Lasuen, accompanied by Father Francisco Dumetz, arrived in the San Fernando Valley and assembled a small arbor for a temporary church. A cross was raised and mass was celebrated as the official San Fernando Rey de Espana Mission.

On January 13, 1847, Captain John C. Fremont accepted the surrender of Governor Pio Pico and Commander Jose Maria Fores. In 1847, the final terms of surrender were signed at Campo de Cahuenga Adobe in the Cahuenga Pass. The Treaty of Guadalupe Hidalgo formally annexed California to the United States in early 1848, ending the Mexican War and beginning the American Period.

San Fernando Mission. On the afternoon of the founding day of the San Fernando Mission, 10 native children, 5 boys and 5 girls, were baptized; the first boy baptized was named Fernando Maria. This was the beginning of the end of the villages in the San Fernando and Santa Clarita Valleys; the Spaniards soon gathered the inhabitants to work on the construction of the San Fernando Mission.

It was on August 28, 1795, that the Spaniards forced themselves to climb and descend the sharpest mountain ridges north into Newhall Valley (Santa Clarita Valley), reaching Castaic Lake. The Spanish government subsequently established missions and military outposts to facilitate colonization of the area and to keep rival European nations out of the area. By the early 1800s, the Estancia de San Francisco Xavier, an outpost of the Mission San Fernando, was established in the fertile Santa Clara River Valley. By 1810, all of the Tataviam in the area had been baptized and relocated to the mission or the *estancia* and the Kitanemuk were taken to Mission San Fernando by the early 1800s (Duff 2004). Eventually, the estancia was reclassified as an *asistencia*, or sub-mission. The Native Americans soon became referred to as Fernandeños, to reflect the Spanish Mission to which they were associated. The introduction of disease was disastrous to the native people. Well over 2,000 natives were interred in the San Fernando Mission cemetery between 1798 and 1852.

Mexico gained independence from Spain in 1822, and on July 25, 1826, Governor Jose Maria Echeandía issued a decree beginning the secularization of the California missions. However, because many Native Americans failed to leave the missions, Echeandía issued a second decree on 6 January 1831 encouraging the Native Americans to leave the missions. Many of the Tataviam left and began their own ranches in the San Fernando Valley, while others went up north to El Tejon to work. When John Harrington interviewed the last

Fernandeños that lived on or near the mission, they told how the mission was in ruins in the late 1880s and described it as a ghost cemetery.

In August 1834, secularization became official under Governor Jose Figueroa. The Spanish mission system was largely abandoned, and the Mexican government bestowed land grants or ranchos on those loyal to the Mexican government and to some Anglo settlers. In the Santa Clara River Valley, Governor Juan B. Alvarado granted the deed to the former Asistencia de San Francisco Xavier lands to Lt. Antonio del Valle (Solis 2008).

Los Ranchos. The Rancho movement in California began in the fall of 1784, when three Spanish soldiers were given permits to graze their cattle on certain tracts of land by Pedro Fages, then governor of Alta California. These land grants were given mostly to soldiers or ex-soldiers during the Spanish Period, which ended in 1822. Formal grants by governors became common during the Mexican Period which followed (Robinson 1930, 1939, 1961).

Antelope Valley History. During the latter half of the 19th century, several factors contributed to Antelope Valley's growth. Those factors included gold mining in the Kerns and Owens rivers; cattle ranching; the start of a Butterfield stagecoach route in 1858; construction of the Los Angeles-to-San Francisco telegraph line in 1860; completion of the Southern Pacific Railroad line in 1876; and ample rainfall during the 1880s and early 1890s, which improved agricultural productivity, and attracted many farmers.

Contrary to common knowledge, prior to the discovery of gold at Sutter's Mill in northern California, a smaller gold rush began southwest of the Antelope Valley. The big discovery occurred in 1842 at what was then called Live Oak Canyon when Francisco Lopez, stopping for lunch while searching for stray cattle, pulled some wild onions and found flakes of gold clinging to their roots. In the subsequent gold rush, the canyon was named Placeritas, meaning "Little Placers," and today is called Placerita Canyon. Gold rushers soon flocked to the canyon and took an estimated $100,000 of gold from the region before heading north to the more exciting discovery at Sutter's Mill.

Mining changed the region's history in profound ways. Some prospectors settled permanently in the valley's southwestern corner during the 1850s and 1860s. The area further grew during the Civil War as gold, silver, and copper were extracted from the Soledad Canyon region and Fremont's Pass was enlarged to facilitate and speed up ore shipments.

The region suffered economic setbacks starting in 1894 when a decade-long drought was the worst in southern California's recorded history. It decimated the regional economy and forced many settlers to abandon their homesteads. However, mining helped valley residents survive the drought and the Great Depression of the 1930s. In addition, twentieth century irrigation methods and electricity brought back local farming.

Mining continues today in and around the Antelope Valley. Besides gold, silver, and copper, the ores and minerals extracted over the years include antimony, borax, calcium, chloride, feldspar, granite, gypsum, iron, lead, lime, limestone, marble, potash, rotary mud, salt, silica, tungsten, uranium, volcanic rock, and zinc (County of Los Angeles Public Library 2009).

Archaeological Site Records and Literature Review. An archaeological records search was undertaken by URS staff archaeologist, Suzanne Black, B.A., at the South Central Coastal Information Center (SCCIC) housed at California State University, Fullerton. This record search was undertaken on December 4, 2008, and included a search of the Project site, including a portion of the transmission line located in Los Angeles County. Additionally, a record search was performed by Southern San Joaquin Valley Information Center (SSJVIC) at California State University, Bakersfield on January 16, 2009, for portions of the proposed transmission line located in Kern County. Both record searches collected data regarding previous archaeological investigations within a 0.5-mile radius of the proposed project site and for previously identified archaeological sites within the proposed Project site and those identified within a 0.5-mile radius of the proposed Project site.

Historic Resources.

Existing Structure. The existing structures on the Project site south of SR-138 include a single family Ranch Style brick house constructed in the late 1930s with lathe and plaster construction and wood floors. The property consists of the single story family home, a wooden maintenance shed, an abandoned mobile home, and two maintenance sheds constructed of metal sheeting. The second occupied residence was built in stages reportedly in the 1960s and 1970s, with wood ceilings and recently installed laminate floors. This style of architecture was popular from 1935 to 1970. Also, known as American Ranch, Western Ranch, or California Rambler, Ranch Style houses can be found in nearly every part of the United States. The mobile home was reportedly brought onto the property approximately 21 years ago, thought to be constructed in the 1970s (Michael Brandman Associates 2007). Refer to Appendix F (Phase I Cultural Resources Survey Technical Report) of this EIR for more information regarding these structures.

Archaeological Resources.

Previous Studies within the Project Site. Two previous archaeological investigations were undertaken within the boundaries of the proposed Project site. These studies are identified in the archives as LA-8169 and KE-320. The methodology and results of the investigations are as follows.

LA-8169. URS Corporation (Nilson 2006) conducted an archaeological survey along 170th Street West, which traverses the western portion of the Project site. No cultural materials were observed during survey.

KE-320. David Chavez and URS Corporation (Chavez 1978) conducted a cultural resources evaluation along Avenue A, which intersects the proposed transmission line in Kern County, California. No cultural materials were observed during survey.

Previous Studies within 0.5 mile of the Project Site. Two previous archaeological studies have been completed within 0.5 mile of the proposed Project site. These studies are identified in the archives as LA-2125, and LA-6604. The methodology and results of the two investigations are as follows.

LA-2125. Thomas King with UCLA (King 1968) conducted an archaeological survey adjacent to the southwestern portion of the Project site. Although the report is limited, no cultural materials were noted during a review of the report.

LA-6604. Albert Knight (1993) conducted a reevaluation of rock art of the Western Mojave Desert. A portion of this study was conducted within 0.5 mile east of the Project site within Fairmont Butte. This study included research of the known site CA-LAN-298, which consists of a single red pictograph. Knight noted that in 1989, all of the Fairmont Butte sites were consolidated under the new trinomial, CAL-LAN-1789/H. Knight concluded "many other pictographs were probably present in the Fairmont Buttes area in the past, and that perhaps some unrecorded elements may still exist today" (Knight 1993). No archaeological survey was conducted.

Archaeological Resources within the Project Site. Four archaeological sites have been previously recorded within the Project site. These archaeological sites are identified in the archives as CA-LAN-1776, CA-LAN-1777, CA-LAN-1780, and CA-LAN-1781. In addition, one archaeological isolate, P-15-012781 has been recorded within the study area for the proposed off-site transmission line route. The locations of archaeological sites are considered confidential under State and federal law. Site descriptions are provided in Table 5.8-1.

Archaeological Resources within 0.5 mile of the Project Site. Twelve archaeological sites have been recorded within a 0.5-mile radius of the proposed Project site. These archaeological sites are identified in the archives as CA-LAN-688, CA-LAN-1675H, CA-LAN-1710H, CA-LAN-1778, CA-LAN-1779, CA-LAN-1782, CA-LAN-1785, CA-LAN-1786, CA-LAN-1787, CA-LAN-1788, CA-LAN-1789/H, and CA-LAN-3127. A description of each site is presented in Table 5.8-2.

Human Remains. A record search was conducted at the SCCIC to determine the presence of human remains within the proposed Project area. The search included a review of all recorded historic sites within a 0.5-mile radius of the proposed Project area, as well as a review of all relevant cultural resource and survey reports. In addition, a review of the USGS

7.5 minute series Fairmont Butte topographic quadrangle was completed, including a visual search for both the small and large cemetery icons.

The nearest cemetery to the proposed project site is located 21 miles from the proposed Project site and is known as Lancaster Cemetery. Lancaster Cemetery started out as a Potter's Field and there are no records until after about 1900. The oldest person buried there was born circa 1860. There are probably hundreds of unmarked graves.

The project is not anticipated to impact human remains within formal cemeteries. While it is not anticipated that the proposed Project will impact human remains outside of formal cemeteries, there is always a possibility of encountering such remains; therefore, mitigation measures are provided to reduce potential impacts to human remains.

Native American Consultation. As part of the research efforts undertaken for this Project, the Native American Heritage Commission (NAHC) was contacted on December 3, 2008 (response received on December 3, 2008) to ascertain the presence of known sacred sites and/or the potential presence of Native American cultural resources within the Project site. A response from the NAHC indicated there was no known presence of such resources. Native American individuals and organizations potentially familiar with the Project site were contacted on December 29, 2008, and a self-addressed stamped envelope was enclosed for reply (Singleton 2008).

On January 23, 2008, URS archaeologist Laurie Solis, M.A. conducted on-site consultation with the following Native American representatives:

- Steven Ortega – Tataviam/Fernadeno Band of Mission Indians
- Randy Folkes – Tataviam/Fernadeno Band of Mission Indians
- John Valenzuela – Tataviam/Fernadeno Band of Mission Indians
- Robert Robinson – Kern Valley Indian Council, Historic Preservation Officer

All members of the Native American community present at the meeting stressed the need for:

- Native American monitoring during Phase II or Phase III Archaeological Testing or Recovery assist in the discovery of potential for Native American burials or sacred sites, given the project sites close proximity to Fairmont Butte.
- Native American monitoring during all construction activities assist in the discovery of potential for Native American burials or sacred sites, given the project sites close proximity to Fairmont Butte.

- Possibility for Native American presence during Phase I to assist in the discovery of potential for Native American burials or sacred sites, given the project sites close proximity to Fairmont Butte.

Comments raised by Robert Robinson – Kern Valley Indian Council, Historic Preservation Officer, included the following:

- Mr. Robinson also expressed the need to make sure run-off avoids known archaeological resources in order to further reduce impacting those sites.

Two written responses regarding the Project site's potential for sites of concern have been provided by Randy Folkes, of the Tataviam/Fernadeno Band of Mission Indians, on January 7 and January 27, 2009 via email concerning the need for Native American monitoring on the Project site during construction activities (see Appendix F).

Phase I Intensive Surface Survey. A Phase I Archaeological Survey of the proposed Project site and off-site transmission line was conducted by a team of eight URS archaeologists, including Laurie Solis (Cultural Task Leader), Mark Neal (Field Director and Crew Chief), Suzanne Black (Crew Chief), David Barklow, Mark Campbell, William Jenson, Nate Orsi, and Shane Wetherbee. The original Phase I survey was conducted from May 4 to May 8, 2009 and from May 11 to May 15, 2009, except for an approximately 125-acre area in the northeastern quarter of Section 24 of Township 8 N, Range 4 W. The 125-acre area was not surveyed in May 2009 due to extremely low ground visibility and the presence of venomous snakes which made survey at this time of year hazardous. This 125-acre area was successfully surveyed in early 2010.

An intensive pedestrian survey was conducted in all areas within the area of potential effect (APE). Ground visibility varied considerably throughout the APE, and though some portions had excellent visibility (>70 percent), much of the project area had poor visibility (<10 percent) due to ground cover of short grasses, forbs, and desert scrub.

Survey was conducted by teams of three to four archaeologists walking parallel 15-meter transects and inspecting all visible ground surfaces. In addition, tailings from animal burrows were inspected for the presence of buried resources. The proposed transmission route extending approximately 3.5 miles north along 170th Street West from the northern Project site boundary was originally surveyed on May 15, 2009 by a team of three archaeologists (Suzanne Black, William Jensen, and Nate Orsi).

A supplemental pedestrian survey of the 125-acre previously unsurveyed area was conducted on the following dates: January 15, 18, and 29, 2010. In addition to the 125-acres on the Project site, a supplemental transmission line (T/L) survey to cover 200-foot-wide expanded study areas west and east of 170th Street West in Kern County was performed on January 28,

2010. A supplemental T/L survey to cover an additional expanded study area east of 170th Street West in the vicinity of the Southern California Edison (SCE) corridor crossing in Kern County (south of Astoria Avenue), was carried out on March 4, 2010. Laurie Solis (Cultural Task Leader) and Nathan Orsi (Archaeologist 1) were the two archaeologists who completed the supplemental work in early 2010. The surveyed areas are explained in more detail in Appendix F. In all three supplemental surveys, parallel 15 meter transects were walked while inspecting all visible ground surfaces. In addition, tailings from animal burrows were inspected for visible ground resources.

The portion of the proposed transmission line route north of Astoria Avenue in Kern County (refer to Figure 4.3-4B) was surveyed for this Project along portions of the public road ROW of 170th Street West. The adjacent private lands were not surveyed due to lack of property owner access permission. The expanded study area north of Astoria Avenue outside of the public road ROW was not surveyed for this Project, but has been studied previously for the SCE TRTP Project, including the area surrounding the planned Whirlwind Substation. The records review performed in January 2009 by the Southern San Joaquin Valley Information Center (SSJVIC) for previously recorded archaeological and historic sites for the AV Solar Ranch One Project transmission line encompassed the area within the expanded transmission line study area north of Astoria Avenue. The SSJVIC records review did not identify any previously recorded archaeological or historic sites within the expanded study area. If the proposed transmission line route north of Astoria Avenue is moved outside of the public road ROW, a supplemental Phase I Cultural Resources survey may be required prior to construction, unless documentation (confidential) from previous surveys (e.g., for SCE) is determined adequate to cover the final routing into SCE's Whirlwind Substation.

Survey Results. As a result of the surveys performed by URS, one historic property, 22 archaeological sites (including one in the APE for the off-site transmission line) and 43 isolates were identified and recorded as summarized in Tables 5.8-3 and 5.8-4, respectively. In addition, four previously recorded archaeological sites within the APE were re-recorded so that their site records could be updated.

All but one historic property and two small historic artifact scatters are prehistoric in age. The prehistoric sites recorded within and near the Project area demonstrate a strong local settlement pattern composed of numerous relatively low density assemblages characterized by a limited range of artifact types, including groundstone, chipped stone tool production debris dominated by locally available rhyolite, and fire-affected rocks. Other artifact types are rare or absent. The emphasis on groundstone tools coupled with the low density and diversity of artifacts suggest the sites represent brief occupations focused on the collection and processing of seasonally available plant foods. The prevalence of rhyolite at the sites may indicate a link with the rhyolite quarries at Fairmont Butte located less than a mile southeast of the project area (Sutton 1981).

The limited activity sites could reflect several resource procurement strategies. For example, they could reflect brief encampments of small task groups traveling to and from the Fairmont Butte area to procure chipped stone raw materials. Or, they could reflect plant food procurement by small task groups staying at Fairmont Butte for an extended period of time while collecting rhyolite. In this regard it is worth noting that Sutton's limited subsurface testing at Fairmont Butte site LAN-298 identified a 2 meter deep cultural deposit indicating that rhyolite sources at Fairmont Butte had been a source of raw material for a long time, perhaps beginning as early as the Pinto Period (Warren 1984). The exceptional depth of cultural materials at LAN-298 and the apparent lack of midden lends credence to the hypothesis that the site may have functioned as a field camp, a task group's temporary habitation site while away from the main residential site (e.g., village). Regardless, documenting the nature, content and age of the small sites on the valley floor though additional surface collection, subsurface excavations and analysis would help understand their relationships with the sites at Fairmont Butte and, thus, would contribute to the overall study of prehistoric settlement, subsistence, and resource procurement patterns throughout Antelope Valley.

Historic Resources – .Evaluation of Subject Property Structures. The Larsen Ranch property (i.e., AV Solar Ranch One Project site) contains several historic period structures. At the time of the survey the Larsen Ranch property contained two residential structures and several associated out-buildings. The Brick Ranch House structure on the Project site consists of single story ranch style structure with a low pitched gable roof and deep-set eaves. It has large double-hung windows and a front facing open patio. The foundation is raised, and the building faces State Route 138. There is an enclosed wooden and screened porch. It is evident that there have been a number of brick repairs throughout the years. The house has two chimneys, one on the west side and one on the east side of the house. The roof is shingled. There is a rear porch that is made up of concrete and brick. The fencing is wrought iron, and there are concrete pathways along with a shed associated with the residence. There is plywood covering the windows and doors. A modern trailer is parked to the north of the house. The house measures approximately 49 feet by 49 feet.

There is an associated brick garage with no door to the west of the house. It has space for two vehicles to fit side by side. There are two add-ons to the south that are smaller, and also made of brick. The enclosed part of the garage has a stepped roof. The open part of the garage has a corrugated sheet metal roof. The floor is made up of poured concrete. Both additions were to the south, and separated from the garage by a common wall. It is of simple construction, dating from the 1940s. The builder and the architect are unknown.

The Wood Frame Ranch House structure on the project site consists of an "A" Frame with two wings. One level is a detached home. Modifications include an additional entrance and covered patio. There are new shingles over an original wood roof. The house has an above

ground concrete slab foundation. The original part of the structure has 4-inch siding and a raised foundation. The two wings were part of an addition. The front and rear patios are made of concrete.

At the time of the survey other associated structures consisted of a brick pig pen, cistern, hay storage, a workshop, and a repair shop.

Though ranch style structures are characteristically simplified compared with earlier ornate styles, the subject property is an even more simplified approach to the classic ranch style and is typical of ranch styles found in southern California constructed during this period. Key assessment findings include:

- No historic event has occurred at the project location.
- The present buildings have a modest design that is not distinctive.
- The historic setting is the historic agricultural setting of the 1930s and 1940s. The rural character of the area and the present physical environment no longer reflects the historic land uses (agriculture) and the area's historic character.
- The subject property structures were built between 1940 and 1947 and thereby surpasses the 50 year criteria for historic evaluation by 12 years. The structures appear to have experienced some alterations, repairs and environmental effects that have impacted the historic-period materials.
- The subject property does not have a direct association with any significant events. Therefore, the subject property does not possess the requisite significance to qualify for listing the NRHP or CRHR per Criterion A and 1.
- The subject property is not listed in the National Register of Historic Places or the California Register of Historic Resources. Research undertaken for the subject property did not yield the identification of any significant person or persons. Therefore, the subject property does not possess the requisite significance to qualify for listing in the NRHP or CRHR per Criterion B and 2.
- The subject property is a modest example of the ranch style and does not embody distinctive characteristics of a type, period, or method of construction. Also, the buildings do not represent the work of a master, or possess high artistic values. The structures are representative of a building type that has been widely documented throughout southern California. Therefore, the subject property does not possess the requisite significance to qualify for listing in the NRHP or CRHR per Criterion C and 3 (Design/Construction).
- The subject property structures have not yielded or may be likely to yield information important in history. Therefore, the property does not possess the requisite significance to qualify for listing in the NRHP or CRHR per Criterion D and 4 (Information Potential).

In summary, the ranch house structures on the proposed Project site are not deemed eligible for listing as a historic resource. Refer to Appendix F for more information.

5.8.2.2 Off-site Transmission Line Route

5.8.2.2.1 Paleontological Resources. The environmental setting for the proposed off-site transmission line route is as described above for the Project site (refer to Section 5.8.2.1.1).

5.8.2.2.2 Archaeological Resources. The general environmental setting for the proposed off-site transmission line route as is described above for the Project site (Section 5.8.2.1.2). No new or previously recorded archaeological sites were found during the literature review and archaeological surface survey of the route along the public road right-of-way (ROW) of 170th Street West in May 2009. One isolated artifact had been previously recorded along the route but it was not relocated during the Phase I Cultural Resource Survey performed by URS in 2009.

During the supplemental transmission line survey performed on March 4, 2010 an archaeological site (milling site) (NL-NO Temp-1) was identified within the APE for the expanded study area (refer to Table 5.8-3).

5.8.3 Project Impacts

5.8.3.1 Methodology and Significance Criteria

According to Los Angeles County significance criteria, the proposed Project would potentially result in a significant impact if:

- The project site is in or near an area containing known archaeological resources or containing features (drainage course, spring, knoll, rock outcroppings, or oak trees) that indicate potential archaeological sensitivity.
- The project site contains rock formations indicating potential paleontological resources.
- The project would cause a substantial adverse change in the significance to known historic structures or sites.
- The proposed project would cause a substantial adverse change in the significance of a historical or archaeological resource as defined in Section 15064.5 of CEQA.
- The proposed project would directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.
- The proposed project would disturb any human remains, including those interred outside of formal cemeteries.

5.8.3.2 Impact Analysis

5.8.3.2.1 Criteria 1: Is the project site in or near an area containing known archaeological resources or containing features (drainage course, spring, knoll, rock outcroppings, or oak trees) that indicate potential archaeological sensitivity?

Construction.

Facility Site. A literature search and a Phase I cultural resources survey has identified 25 known archaeological sites, 43 isolates, and one historic property within the proposed Project area. Aeolian and alluvial deposition also may have buried or otherwise obscured cultural resources.

Off-site Transmission Line. A literature search and a Phase I cultural resources survey has identified one known archaeological site in the APE for the proposed transmission line route. During the Phase I survey, vegetation obscured ground visibility in some areas, and aeolian and alluvial deposits may have buried additional cultural resources. Therefore, undiscovered cultural resources may exist in the proposed Project area along the off-site transmission line route, including tower foundation locations where subsurface disturbance would occur during construction.

Potential Impact 5.8-1: Impacts on known cultural resources or areas that are potentially archaeologically sensitive during construction activities.

Virtually the entire Project site could be disturbed by vegetation clearing, grubbing, grading, cutting, filling, trenching, and vehicle use associated with construction of permanent and temporary roads, infiltration basins, utility trenching, construction staging and laydown, Operations and Maintenance facility construction, and facility and solar panel array installations. Ground disturbing construction activities such as these as well as transmission line construction activities have the potential to disturb, damage or destroy known archaeological sites, and thus would have a potentially significant impact. In addition, undiscovered sites could also be significantly impacted by ground disturbance. Impacts are considered to be potentially significant, but can be reduced to a less than significant level through implementation of Mitigation Measures (MM) 5.8-1 through 5.8-5, and 5.8-7.

Potential Impact 5.8-2: Impacts on unknown cultural resources.

Ground disturbing construction activities such as vegetation clearing and grubbing, grading, drilling, and vehicle use has the potential to disturb, damage or destroy unknown archaeological sites, and thus are considered to have a potentially significant impact. Impacts

are considered to be potentially significant, but can be reduced to a less than significant level through implementation of Mitigation Measures (MM) 5.8-1 through 5.8-5, and 5.8-7.

Operation.

Facility Site. A literature search and a Phase I cultural resources survey have identified 25 known archaeological sites in the proposed Project area.

Potential Impact 5.8-3: Impacts on known cultural resources or areas that are potentially archaeologically sensitive during operational activities.

If significant archaeological sites are avoided and preserved during construction activities, they can be indirectly impacted by operational activities. Operations would increase the number of people in close proximity to archaeological resources and thus increase potential impacts from unauthorized artifact collection, looting, or other intentional or unintentional disturbance to an archaeological site. Such impacts would be considered significant. Impacts are considered to be potentially significant, but can be reduced to a less than significant level through implementation of Mitigation Measures (MM) 5.8-1 through 5.8-5, and 5.8-7.

Off-site Transmission Line. The Phase I cultural resources survey identified one archaeological site in the APE for the proposed transmission line. If significant archaeological sites are avoided and preserved during construction activities, they can still be indirectly impacted by operational activities. Transmission line maintenance activities may increase the number of people in close proximity to the identified archaeological resource and thus increase potential impacts from unauthorized artifact collection, looting, or other intentional or unintentional disturbance to the archaeological site. Such impacts would be considered significant. Impacts are considered to be potentially significant, but would be reduced to a less than significant level through implementation of Mitigation Measures (MM) 5.8-1 through 5.8-5, and 5.8-7.

5.8.3.2.2 Criteria 2: Does the project site contain rock formations indicating potential paleontological resources?

Construction.

Facility Site. No paleontologically sensitive rock formations have been indentified in the proposed Project area, and impacts to sensitive paleontological resources would not be expected to occur associated with Project construction.

Off-site Transmission Line. No sensitive rock formations have been identified in the proposed Transmission Line corridor that contain potential paleontological resources. Thus, no impacts are anticipated.

Operation.

Facility Site. No rock formations have been identified in the proposed Project area that contain potential paleontological sensitivity. No impacts to sensitive paleontological resources as a result of Project operations would be expected to occur.

Off-site Transmission Line. No rock formations have been identified in the proposed Project area that contain potential paleontological sensitivity. No impacts to sensitive paleontological resources as a result of transmission line operations would be expected to occur.

5.8.3.2.3 Criteria 3: Does the project site contain known historic structures or sites?

Construction.

Facility Site. No standing historic structures or built environment exist in the proposed Project area. The ranch house structures on the proposed Project site are not deemed eligible for listing as a historic resource, as evaluated in Section 5.8.2.1.2. Thus, the Project would result in less than significant impacts to historic structures.

Off-site Transmission Line. No standing historic structures or built environment exists along the proposed transmission line route, and thus no impacts would occur associated with construction of the proposed off-site transmission line.

Operation.

Facility Site. No standing historic structures or built environment exists in the proposed Project area. As evaluated in Section 5.8.2.1.2, the ranch house structures on the proposed Project site are not deemed eligible for listing as a historic resource,. Thus, the Project would result in less than significant impacts to historic structures.

Off-site Transmission Line. Operational phase activities for the off-site transmission line would be non-intrusive, and thus there would be no impacts during transmission line operations.

5.8.3.2.4 Criteria 4: Would the project cause a substantial adverse change in the significance of a historical or archaeological resource as defined by Section 15064.5?

Construction.

Facility Site. A literature search and a Phase I cultural resource survey has identified 25 known archaeological sites in the proposed Project area. These sites have not been fully

evaluated for significance under CEQA guidelines and are assumed potentially significant for purposes of this impact assessment.

***Off-site Transmission Line*.** A literature search and a Phase I cultural resource survey identified one known archaeological sites in the APE for the proposed transmission line route. Additionally, the potential exists for undiscovered significant archaeological resources to exist.

Potential Impact 5.8-4: Impacts on significant historical or archaeological resources as defined by CEQA during construction activities.

Ground disturbing construction activities such as vegetation clearing, grubbing, grading, filling, trenching, and vehicle use have the potential to disturb, damage or destroy known historical or archaeological resources, and thus could result in potentially significant impacts. In addition, undiscovered sites could also be potentially significantly impacted by ground disturbance. No archaeological sites in the proposed Project area have been evaluated for significance under CEQA guidelines. Impacts on significant archaeological resources are considered to be potentially significant, but can be reduced to a less than significant level through implementation of Mitigation Measures (MM) 5.8-1 through 5.8-5, and 5.8-7. Evaluation of the ranch house structure on the Project site has determined that is does not qualify for NRHP or CRHR listing, thus its demolition would not have a significant impact on historic resources.

Potential Impact 5.8-5: Impacts on undiscovered significant historical or archaeological resources as defined by CEQA during construction activities.

Ground disturbing construction activities such as vegetation clearing and grubbing, grading, drilling, trenching, and vehicle use has the potential to disturb, damage or destroy unknown historical or archaeological resources, and thus could have a potentially significant impact.

***Operation*.**

***Facility Site*.** A literature search and a Phase I cultural resource survey has identified 25 known archaeological sites in the proposed Project site area. These sites have not been evaluated for significance under CEQA guidelines, because further evaluation of these sites is required before any determination can be made.

***Off-site Transmission Line*.** The literature search and Phase I surveys for the proposed transmission line identified one archaeological resource in the APE. The site has not been evaluated for significance under CEQA guidelines and further evaluation is required before any determination can be made.

Potential Impact 5.8-6: Impacts on significant historical or archaeological resources as defined by CEQA during operational activities.

If significant archaeological sites are avoided and preserved during construction activities, they can be indirectly yet significantly impacted by operational activities. Operations would increase the number of people in close proximity to archaeological resources and thus increase potential impacts from unauthorized artifact collection, looting, or other intentional or unintentional disturbance to an archaeological site. Such impacts would be considered significant. Impacts are considered to be potentially significant, but can be reduced to a less than significant level through implementation of Mitigation Measures (MM) 5.8-1 through 5.8-5, and 5.8-7.

5.8.3.2.5 Criteria 5: Would the project directly or indirectly destroy a unique paleontological resource or unique geological feature?

Construction.

Facility Site. No unique paleontological resources or sites and no unique geological features have been identified in the proposed Project area. The entire project area is comprised of a surficial fan deposit composed of Quaternary Alluvium. Since the deposits are derived mostly from igneous rocks, they typically do not contain significant vertebrate fossils, at least in the uppermost layers. No Project-related impacts to unique paleontological or geologic features are expected to occur.

Off-site Transmission Line. No unique paleontological resources or sites and no unique geological features have been identified in the proposed Project area. Thus, there would be no impacts expected from Project construction.

Operation.

Facility Site. No unique paleontological resources or sites and no unique geological features have been identified in the proposed Project area. Thus, there would be no impacts expected from Project operations.

Off-site Transmission Line. Operational phase activities for the off-site transmission line would be non-intrusive, and no impacts to sensitive cultural or paleontological resources would be expected to occur.

5.8.3.2.6 Criteria 6: Would the project disturb any human remains, including those interred outside of formal cemeteries?

Construction.

Facility Site. A literature search and a Phase I cultural resource survey did not identify any known human remains in the proposed Project area.

Off-site Transmission Line. A literature search and a Phase I cultural resource survey did not identify any known human remains in the APE for the off-site transmission line.

Potential Impact 5.8-7: Impacts on undiscovered human remains.

The proposed Project site has the potential to contain undiscovered prehistoric sites that could include human remains. Should they exist, they could be disturbed, damaged or destroyed by ground disturbing construction activities such as vegetation clearing, grubbing, grading, filling, trenching, and vehicle use. Thus, the proposed Project could have a potentially significant impact on undiscovered human remains. Impacts are considered to be potentially significant, but can be reduced to a less than significant level through implementation of Mitigation Measure (MM) 5.8-5.

The potential for buried, undiscovered human remains exists in the proposed Project area along the proposed off-site transmission line route.

Potential Impact 5.8-8: Impacts on undiscovered human remains.

Ground disturbing construction activities such as vegetation clearing, grubbing, grading, filling, drilling, trenching, and vehicle use have the potential to disturb, damage or destroy undiscovered human remains. Impacts are considered to be potentially significant, but can be reduced to a less than significant level through implementation of Mitigation Measure (MM) 5.8-5.

Operation.

Facility Site. A literature search and a Phase I cultural resource survey did not identify any known human remains. Operational phase activities would be non-intrusive and no impacts to human remains would be expected to occur.

Off-site Transmission Line. A literature search and a Phase I cultural resource survey did not identify any known human remains. Operational phase activities would be non-intrusive and no impacts to human remains would be expected to occur.

5.8.3.2.7 Indirect Impacts. There are no anticipated indirect impacts of the proposed Project area, other than those discussed under operational impacts.

No potentially significant indirect impacts to cultural or paleontological resources associated with construction or operations of the proposed Project site or off-site transmission line would be expected to occur.

5.8.4 Cumulative Impacts

There are multiple other proposed projects within 5 miles of the proposed AV Solar Ranch One Project that have the potential result in direct or indirect cumulative impacts on cultural resources (refer to Section 4.6). With implementation of the proposed mitigation measures presented in Section 5.8.5 for cultural resources, no Project-specific significant impacts to cultural resources would be expected to occur. Additionally, since the proposed Project impacts would be mitigated to less than significant levels, the proposed Project would not significantly contribute to possible cumulative effects associated with other projects in the Project region. Assuming that other projects that may be approved and implemented would also mitigate all their potentially significant project-specific impacts to cultural resources, as required by law, no significant cumulative impacts would be expected to occur.

5.8.5 Mitigation Measures

To mitigate potential cultural resource impacts associated with the proposed Project, the applicant shall be responsible for ensuring a qualified archaeologist implements the following measures in accordance with professional standards and guidelines, including those established by the California OHP.

Mitigation Measure (MM) 5.8-1: Avoid Archaeological Sites. Archaeological sites within the proposed Project area shall be avoided and protected from future disturbance or evaluated for significance and mitigated, as appropriate, to the satisfaction of the Los Angeles County Department of Regional Planning (LACDRP).

MM 5.8-2: Phase II Testing/Phase III Data Recovery. Prior to construction, Phase II testing and evaluation shall be conducted at all unavoidable prehistoric archaeological sites in the proposed Project area to determine their significance under Section 15064.5 of CEQA. Sites determined eligible for the California Register of Historic Resources (CRHR) shall either be avoided and protected from future disturbance, or a Phase III data recovery plan shall be prepared and implemented prior to construction to the satisfaction of LACDRP. All archaeological collections, technical reports and related documentation shall be curated at a curation facility approved by the County of Los Angeles.

MM 5.8-3: Archaeological Monitoring. Prior to construction, an archaeological monitoring plan shall be prepared and implemented to the satisfaction of LACDRP. A qualified archaeological monitor shall be present during all ground disturbing activities, including vegetation clearing, grubbing, grading, filling, drilling, and trenching. In the event that any prehistoric or historic cultural resources (chipped or ground stone lithics, animal bone, ashy midden soil, structural remains, historic glass or ceramics, etc.) are discovered during the course of construction, all work in the vicinity shall halt, and the archaeologist shall record the resources on the appropriate California Department of Parks and Recreation (DPR) 523 Series Forms, evaluate the significance of the find, and if significant, determine and implement the appropriate mitigation, including but not limited to Phase III data recovery and associated documentation to the satisfaction of LACDRP. Such activities may result in the preparation of additional Phase II and Phase III technical reports. After ground-disturbing construction activities have been completed, an archaeological construction monitoring report shall be completed and submitted to the LACDRP.

MM 5.8-4: Native American Monitor. A Native American monitor (Tataviam/Fernadeno Band of Mission Indians) shall be notified prior to construction and allowed the opportunity to be present during all ground disturbing activities, including vegetation clearing, grubbing, grading, filling, drilling, and trenching. In the event that any sacred site or resource is identified, a Native American monitor shall be retained to divert construction activities to another area of the Project site while a proper plan for avoidance or removal is determined to the satisfaction of the LACDRP.

MM 5.8-5: Human Remains. In the event human remains are encountered, construction in the area of the finding shall cease, and the remains shall stay in situ pending definition of an appropriate plan. The Los Angeles County Coroner (Coroner) shall be contacted to determine the origin of the remains. In the event the remains are Native American in origin, the NAHC shall be contacted to determine necessary procedures for protection and preservation of the remains, including reburial, as provided in the State of California Environmental Quality Act (CEQA) Guidelines, Section 15064.5(e), "CEQA and Archaeological Resources," CEQA Technical Advisory Series.[1]

MM 5.8-6: Paleontological Resources Protection. In the event paleontological discoveries are encountered by the cultural monitors, all excavation shall cease in the area of the find and a paleontologist shall be retained, who shall devise a plan for recovery in accordance with standards established by the Society of Vertebrate Paleontology. At least one of the on-site cultural monitors during construction shall have familiarity and expertise in paleontological resources and have the ability to recognize significant vertebrate paleontological resources.

[1] California Resources Agency. 16 September 2004. California Environmental Quality Act, Article 5,§15064.5(e):" Determining the Significance of Impacts to Archaeological and Historical Resources." Available at: <http://ceres.ca.gov/topic/env_law/ceqa/guidelines/art5.html>.

Any paleontological resources shall be documented and submitted to the Natural History Museum of Los Angeles County, or any other accredited institution (i.e., San Bernardino County Museum, UCLA Dept of Earth and Space Sciences) that will accept paleontological resources for curation.

MM 5.8-7: Construction Worker Training. Prior to construction, the qualified archaeological monitor or qualified designee shall conduct a brief educational workshop such that all construction personnel understand monitoring requirements, roles and responsibilities of the monitors, and penalties for unauthorized artifact collecting or intentional disturbance of archaeological resources. The construction worker training shall include an overview of potential cultural and paleontological resources that could be encountered during ground disturbing activities to facilitate worker recognition, avoidance, and subsequent immediate notification to a designated on-site cultural monitor for further evaluation and action, as appropriate.

5.8.6 Level of Significance after Mitigation

Implementation of the above mitigation measures would reduce potential impacts to cultural resources associated with construction and operation of the proposed Project to less than significant levels.

5.8.7 References

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TABLE 5.8-1
PREVIOUSLY RECORDED ARCHAEOLOGICAL SITES
WITHIN THE PROJECT SITE

Site Name	Author (Year)	Site Description
CA-LAN-1776	Love (1990)	Extremely sparse lithic scatter consisting of fire affected rock, one piece of groundstone, a rhyolite flake, and various pieces of rhyolite shatter distributed over an area measuring 65m x 30m.
CA-LAN-1777	Love (1990)	Sparse lithic scatter consisting of fire affected rock, one piece of groundstone, one basalt pestle, one hopper mortar, rhyolite cores, flake, and shatter flake, distributed over an area measuring 120m x 110m.
CA-LAN-1780H	Love (1990)	Lithic scatter consisting of rhyolite flakes, cores, and debitage, a cutting tool, metate fragments, a basalt mano fragment, and a single flake of chert. Site measures 65m x 40m.
CA-LAN-1781	Love (1990)	Lithic scatter consisting of rhyolite flakes, one basalt bowl fragment, and a basalt metate distributed over an area measuring 65m x 60m.
P-15-012781	Unknown	This resource consists of a single, rhyolite core isolate.

TABLE 5.8-2
PREVIOUSLY RECORDED ARCHAEOLOGICAL RESOURCES WITHIN 0.5 MILE OF THE PROJECT SITE

Site Name	Author (Year)	Site Description
CA-LAN-688	Love and De Witt (1990)	Lithic reduction site measuring 400 meters (m) by 200m. Site consists of all stages of lithic production from cores to finished bifaces. Also includes a basalt pestle, mano fragments, and a granite pestle.
CA-LAN-1675H	Norwood (1989)	Historic homestead site dating to the turn of the 20th Century. Measures 68m by 42m and includes four pit features, possible check-dam, and household and ranching refuse (glass, hole-in-cap cans, earthenware).
CA-LAN-1710H	Norwood (1990)	Probable homestead dating to 1900. Site measures 53m by 38m and consists of a shallow depression, granitic rock feature, and household refuse (glass, square nails, and cans).
CA-LAN-1776[1]	Love (1990)	Prehistoric sparse lithic scatter within an agricultural field. Site measures 65m by 30m and consists of 1 schist metate fragment, rhyolite flakes and debitage and fire-affected rock.
CA-LAN-1777[1]	Love (1990)	Prehistoric lithic site consisting of 1 basalt pestle, 1 schist metate fragment, rhyolite cores, debitage and flakes, 1 hopper mortar, and fire-affected rock. Site measures 120m by 110m.
CA-LAN-1778	Love (1990)	Prehistoric lithic scatter consisting of rhyolite cores, flakes, tools, and one schist metate fragment, and possible fire-affected rocks. Site measures 50m by 35m.
CA-LAN-1779	Love (1990)	Prehistoric milling site consisting of 3 schist metate fragments, 1 basalt biface mano, and 1 rhyolite core. Site measures 55m by 7m.
CA-LAN-1780[1]	Love (1990)	Prehistoric milling and lithic site measuring 65m by 40m. Site consists of rhyolite flakes, cores, debitage and 1 cutting tool, schist metate fragments, 1 basalt mano fragment, 1 chert flake.
CA-LAN-1781[1]	Love (1990)	Prehistoric lithic and milling site measuring 65m by 60m. Site consists of 3 rock clusters, rhyolite flakes, 1 basalt bowl fragment, and 1 basalt metate.
CA-LAN-1782	Love (1990)	Prehistoric sparse lithic scatter measuring 55m by 40m. Artifacts consist of rhyolite flakes, 1 soapstone shaft-straightener, and possible fire-affected granitics.
CA-LAN-1785	Love and De Witt (1990)	Prehistoric lithic and milling site consisting of dozens of rhyolite flakes and debitage, 1 mano, 1 schist metate fragment and 1 core. Site measures 200m by 110m.
CA-LAN-1786	Love and De Witt (1990)	Prehistoric milling and lithic reduction site measuring 270m by 120m. Site consists of 1 rhyolite biface, schist metates, hammerstones, 1 hopper mortar with asphalt, 1 pestle, 1 mortar/bowl, flakes, cores and manos.
CA-LAN-1787	Love (1990)	Prehistoric sparse lithic scatter consisting of 1 rhyolite biface, one obsidian flake, and several rhyolite flakes. Site measures 90m by 25m.

TABLE 5.8-2 (CONTINUED)
PREVIOUSLY RECORDED ARCHAEOLOGICAL RESOURCES
WITHIN 0.5 MILE OF THE PROJECT SITE

Site Name	Author (Year)	Site Description
CA-LAN-1788	Love and De Witt (1990)	Prehistoric lithic production and milling site. Site is situated at the confluence of two streams and measures 90m by 80m. Artifacts include 1 metate and metate fragment, hammerstones, flakes, and debitage.
CA-LAN-1789/H	Love et al. (1989)	Multi-component site consisting of lithic production materials, millingstones (manos, metates, mortars, pestles), rock features of unknown age, and a historic tuff mill. Site measures 3,500m by 1,500m.
CA-LAN-3172	Whitley (2004)	Prehistoric low-density lithic scatter measuring 1,000m by 330m. Artifacts include rhyolite flakes and shatter.

[1] Note: These sites are located on the proposed Project site.

TABLE 5.8-3
ARCHAEOLOGICAL SITES RECORDED WITHIN THE PROJECT SITE AND TRANSMISSION ROUTE STUDY AREA

Field Designation	Description
Project Site	
CA-LAN-1776 Update	Concentration of fire-affected and fire-cracked rock and one rhyolite flake.
CA-LAN-1777 Update	Large scatter of rhyolite flakes, three biface fragments, one mano fragment, and scattered fire-cracked rock.
CA-LAN-1780 Update	Large scatter of fire-cracked rock, 30 plus groundstone fragments and a lithic scatter consisting of mostly rhyolite with two crypto-crystalline silicate (CCS) flakes.
CA-LAN-1781 Update	Large site consisting of 20 groundstone fragments, 25 pieces of fire-affected rock, several rhyolite cores, flakes and shatter, nine metate fragments, one groundstone fragment, and one CCS flake.
URS-SB-1	Historic trash scatter consisting of bottle glass shards, ceramic sherds, and unknown metal fragments.
URS-SB-2	Prehistoric lithic scatter consisting of six rhyolite flakes.
URS-SB-3	One portable schist metate fragment and two fire-affected schist fragments in association.
URS-SB-4	Prehistoric lithic scatter consisting of seventeen rhyolite flakes, one granitic mano, and two fire-affected rocks.
URS-SB-5	Cluster of fifteen granitic fire-cracked rocks.
URS-SB-6	Prehistoric lithic scatter consisting of rhyolite flakes and shatter, and one CCS flake.
URS-MN-1	Prehistoric lithic scatter consisting of four rhyolite flakes, one rhyolite core, and one ground stone (metate) fragment.
URS-MN-2	Lithic scatter consisting of rhyolite flakes and shatter.
URS-MN-3	Lithic scatter consisting of two rhyolite flakes and one rhyolite core.
URS-MN-4	Lithic scatter consisting of five large rhyolite core fragments with shatter, fire-cracked rock, and four groundstone fragments.
URS-MN-5	Lithic scatter consisting of three rhyolite core fragments and shatter, one groundstone fragment, two rhyolite flakes, and fire-cracked rock.
URS-MN-6	Lithic scatter consisting of three rhyolite core fragments and shatter, five groundstone fragments, and ten pieces of fire-cracked rock.
URS-MN-7	Lithic scatter consisting of seven groundstone fragments, one rhyolite flake, four pieces of rhyolite shatter, and fire-affected rock.
URS-MN-9	Lithic scatter consisting of three rhyolite flakes, one piece of tabular rhyolite, and one groundstone fragment.
URS-MN-10	Lithic scatter consisting of rhyolite cores, flakes and tools, two burned rhyolite metate fragments, and fire-affected rock.
URS-MN-11	Lithic scatter consisting of rhyolite cores, tools, and shatter, four groundstone fragments, and fire-affected rock.

TABLE 5.8-3 (CONTINUED)
ARCHAEOLOGICAL SITES RECORDED WITHIN THE PROJECT SITE AND TRANSMISSION ROUTE STUDY AREA

Field Designation	Description
URS-MN-12	One historic era glass bottle base and four other glass shards from the same bottle. Glass bottle base has been worked, possibly with the intention of making a projectile point preform.
URS-MN-13	Sparse scatter of rhyolite flakes, groundstone fragments, and fire-cracked rock.
URS-MN-15	Sparse lithic scatter consisting of rhyolite flakes and shatter.
URS-MN-16	Scatter consisting of one large, shaped pestle fragment, seven groundstone fragments, rhyolite flakes and shatter, and fire-affected rock.
URS-MN-17	Sparse scatter of groundstone fragments, fire-cracked rock, and rhyolite cores, flakes, and shatter.
Transmission Line[1]	
NL-NO Temp-1	Site consisting of 10 artifacts total. One possible mortar fragment; 5 small-to medium-size boulders on surface indicating milling activity; quartz cores and fragments; and one mano fragment.

[1] The identified site is located within the expanded transmission line study area and outside of the public road ROW.

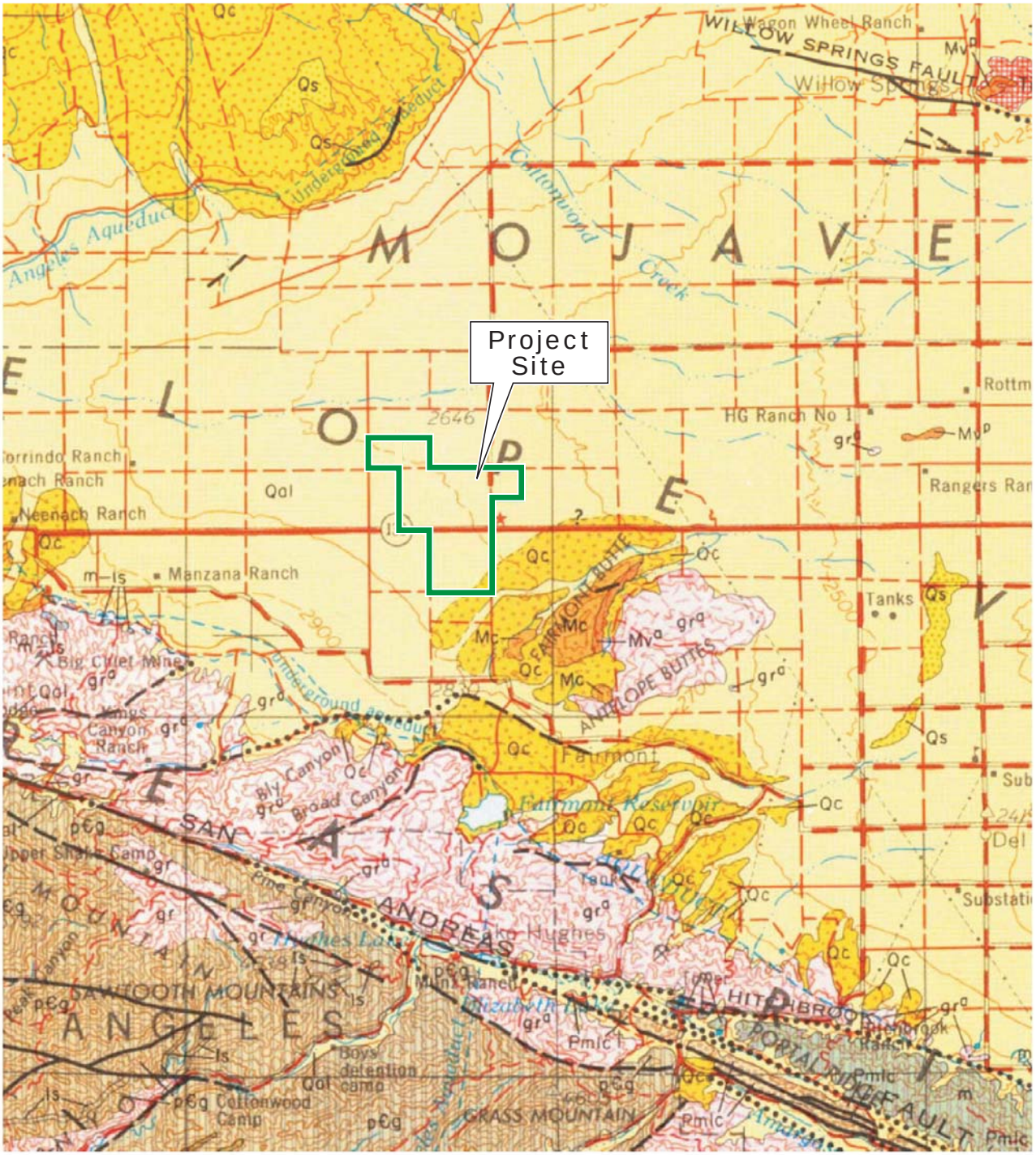
TABLE 5.8-4
ISOLATED ARTIFACTS RECORDED WITHIN THE PROJECT SITE

Field Designation	Description
ISO-SB-1	Rhyolite secondary flake measuring 2.5 x 1.9 x 0.4 centimeters (cm).
ISO-SB-2	Green bottle base with embossing "PLUTO" with a man figure. Likely dates to the 1930s. Base measures 3 1/8" diameter.
ISO-SB-3	Pink and white granitic mortar fragment. Has an estimated diameter of 19 cm.
ISO-SB-4	Granitic mano with one area of use wear. Measures 13.7 x 10.2 x 6.9 cm.
ISO-SB-5	Large rhyolite secondary flake measuring 7.6 x 6.7 x 2.4 cm.
ISO-SB-6	One granitic mano fragment, slightly convex with a polished grinding surface. Measures 8.9 x 6.2 x 3.9 cm. Grinding surface measures 6.5 x 7.0 cm.
ISO-SB-7	One rhyolite core measuring 6.9 x 6.2 x 5.8 cm.
ISO-SB-8	One rhyolite tertiary flake.
ISO-SB-9	One rhyolite tertiary flake measuring 3 x 2 x 0.5 cm.
ISO-SB-10	One white/mottle purple rhyolite test cobble with 80 percent cortex and one flake removal scar. Test cobble measures 11.7 x 7.4 x 5.2 cm.
ISO-SB-11	One piece of rhyolite debitage. Material is flow-banded brown to purplish-gray and measures 4.9 x 3.7 x 2.8 cm.
ISO-SB-12	One secondary (15 percent cortex remaining) and one tertiary purple banded rhyolite flake.
ISO-SB-13	One schist metate measuring 21.4 x 20.4 x 6.4 cm, and one rhyolite cobble.
ISO-SB-14	One secondary (10 percent cortex remaining) rhyolite flake measuring 6.9 x 5.5 x 1.5 cm.
ISO-SB-15	Two chunky rhyolite flakes. Material has a light cream and pinkish-tan banding. Flakes measure 5.1 x 3.3 x 1.8 cm and 3.6 x 2.2 x 0.9 cm.
ISO-SB-16	One historic steel headed pick/hoe with a twisted steel to attach hoe end. Attached to a weathered wooden handle measuring 33 inches long. Pick/hoe head measures 14 inches.
ISO-SB-18	One hand chopping tool. Tool is triangular in shape and is made of a grayish-white rhyolite. Tool measures 11.7 x 11.2 x 2.7 cm.
ISO-SB-19	One schist unifacial metate fragment measuring 11.8 x 5.8 x 3.2 cm.
ISO-MN-1	Tabular rhyolite fragment that is brownish-purple. Fragment measures 14 x 10 x 4 cm.
ISO-MN-2	Rhyolite secondary flake, purplish-brown in color, measuring 10 x 22 x 5 millimeters (mm).
ISO-MN-3	Small rhyolite flake, pinkish-brown in color. Flake measures 2.5 x 2.2 x 0.7 cm.
ISO-MN-4	Ground and battered rhyolite cobble fragment measuring 9 x 9 x 9 cm.
ISO-MN-5	Two rhyolite flakes (one whole, one fragment) measuring 3 x 2.2 x 0.5 cm and 1 x 2 x 1.2 cm.
ISO-MN-6	One rhyolite flake fragment measuring 3.7 x 1.6 x 0.7 cm.
ISO-MN-7	One secondary flake measuring 3.2 x 2.2 x 0.2 cm. Flake is CCS material and may have possibly been heat treated.
ISO-MN-8	One rhyolite core measuring 9.2 x 5.0 x 5.4 cm.
ISO-MN-9	One rhyolite core with a possible ground surface. Core measures 11.3 x 9.0 x 5.8 cm.

TABLE 5.8-4 (CONTINUED)
ISOLATED ARTIFACTS RECORDED WITHIN THE PROJECT SITE

Field Designation	Description
ISO-MN-10	One purple rhyolite worked flake or tool fragment. Possibly heat treated with waxy appearance. Flake measures 2.5 x 1.3 x 0.4 cm.
ISO-MN-11	One whole mano of fine-grained black granitic material. Mano measures 8.7 x 8.9 x 5.9 cm.
ISO-MN-12	One groundstone fragment measuring 9.5 x 8.8 x 9.2 cm and one fragment of fire-cracked rock.
ISO-MN-13	One rhyolite core measuring 10 x 5 x 3.5 cm. Two fire-cracked rocks are located 10-15 meters (m) east of the isolate.
ISO-MN-14	One rhyolite core measuring 11 x 9 x 4 cm and one groundstone fragment measuring 5.8 x 6.7 x 4.7 cm. A piece of fire-cracked rock was noted in the area.
ISO-MN-15	One large, primary decortification flake of rhyolite measuring 7 x 6 x 2.8 cm.
ISO-MN-16	One piece of rhyolite shatter measuring 4.9 x 4.3 x 2.5 cm.
ISO-MN-17	Partially buried metate measuring 20.3 x 23.2 x 9.4 cm.
ISO-MN-18	Large rhyolite primary flake measuring 17.2 x 7.5 x 6.9 cm.
ISO-MN-19	One rhyolite flake measuring 5.1 x 2.4 x 0.5 cm.
ISO-MN-20	Well-shaped granitic pestle fragment (distal end) measuring 8.7 x 6.7 x 5.3 cm.
ISO-MN-21	One rhyolite core measuring 11.8 x 10.9 x 5.7 cm.
ISO-MN-22	One rhyolite primary flake measuring 4.0 x 5.2 x 0.7 cm.
ISO-MN-23	One rhyolite flake and one rhyolite flake fragment.
NL-NO ISO-1	One ryholite flake measuring 7 x 4 x 2 cm.
NL-NO ISO-2	One ryholite flake measuring 4.5 x 2 x 2.1 cm.

T/Ladd/NextLight/ADEIR#3/Cultural/709-116A



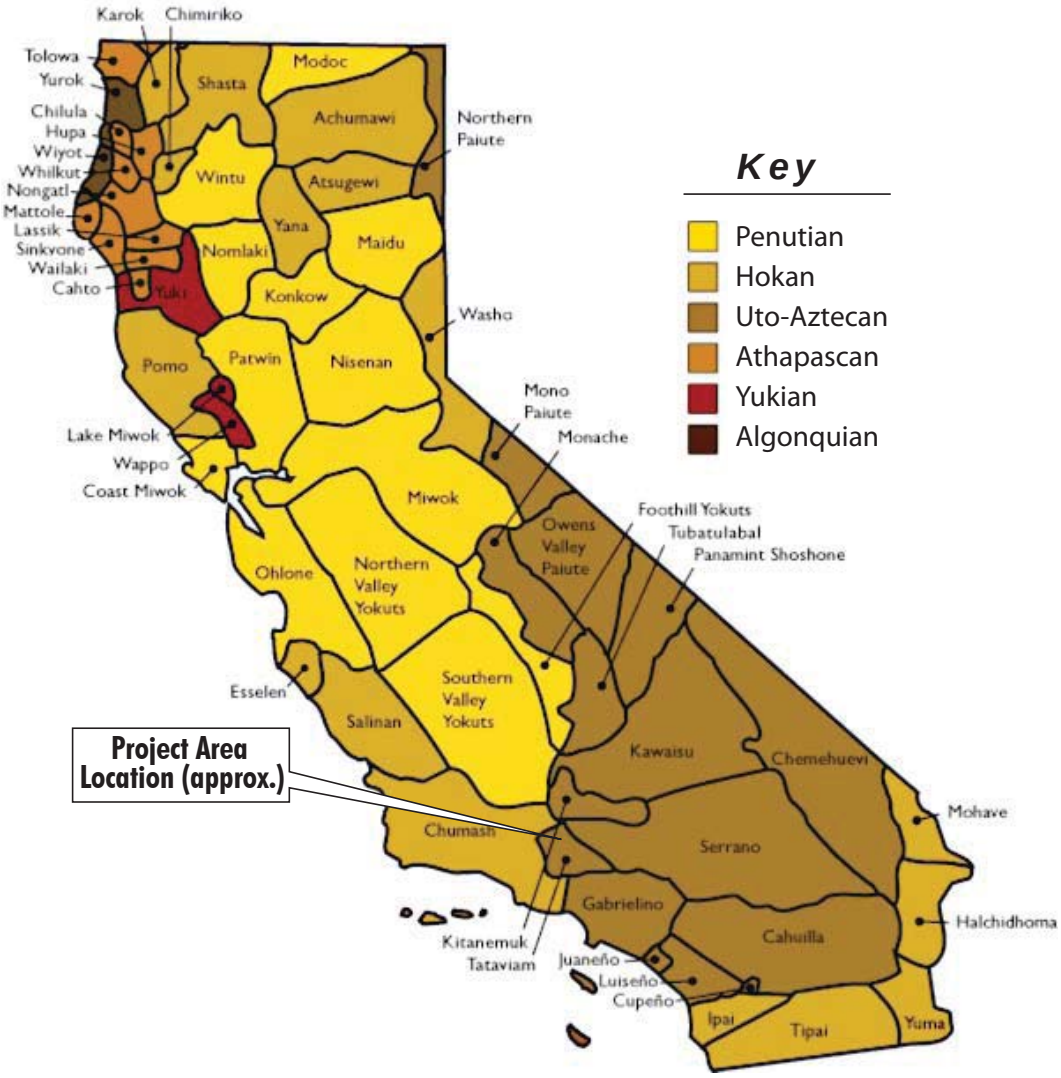
Key

Qc — Pleistocene nonmarine

Qal — Alluvium

NOT TO SCALE

Source: CDMG, Geologic Map of the Santa Ana Sheet, California, 1992	**AV Solar Ranch One EIR**	**Figure 5.8-1.** GEOLOGY MAP	2010



Source: California Native American Heritage Commission 2009	**AV Solar Ranch One EIR**	**Figure 5.8-2.** CALIFORNIA TRIBAL AREA MAP	2010

5.7 BIOLOGICAL RESOURCES

This section describes the regulatory framework, environmental setting, and significance criteria pertaining to biological resources, and analyzes the potential impacts to these resources associated with the proposed AV Solar Ranch One Project (Project). The potential impacts are described and assessed, and feasible mitigation measures are proposed to avoid or substantially lessen those impacts determined to be potentially significant. The biological resources assessment includes consideration of the results of the biological technical studies performed for the Project, which are presented in Appendix E (Biota Report) of this Draft EIR. The Biota Report (dated November 9, 2009), was developed for an earlier Project configuration that included Project facilities that overlapped and traversed a designated Significant Ecological Area (SEA). The Project configuration has since been revised to exclude SEA resources. As a result, the Biota Report in Appendix E functions as a technical report to reference biological for survey data and impacts.

5.7.1 Regulatory Setting

Summaries of Federal, State and local laws and regulations governing biological resources that are potentially applicable to the proposed Project are provided below.

5.7.1.1 Federal

5.7.1.1.1 Federal Endangered Species Act. Section 9 of the Endangered Species Act (ESA) prohibits the "take" of federally listed Threatened and Endangered species. The ESA defines "take" as any action that would harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect any Threatened or Endangered species. If a proposed project may result in "take" of a listed species, and the project is not funded, authorized, or carried out by a federal agency, an Incidental Take Permit under Section 10(a)(1)(B) of the ESA from the U.S. Fish and Wildlife Service (USFWS) is required; a Habitat Conservation Plan (HCP) must accompany this permit application. If there is a nexus with a federal agency, the acting agency is required to consult with the USFWS under Section 7 of the ESA and to obtain a Biological Opinion indicating that the proposed action would neither jeopardize the continued existence of the species nor result in destruction or adverse modification of designated critical habitat. Because no federally listed species are known or suspected to occur on the Project site or along the off-site transmission line route, applicability of this statute would be contingent on unanticipated discovery of such species.

5.7.1.1.2 Migratory Bird Treaty Act. The proposed Project would also be subject to the requirements of the Migratory Bird Treaty Act (MBTA) This regulation protects all migratory birds and their nests and makes it unlawful to "take" (e.g., pursue, kill, harm, harass) any migratory birds, or their eggs or active nests.

5.7.1.1.3 Federal Clean Water Act. Perennial and intermittent drainages, creeks, and streams that are tributary to navigable waters are generally subject to jurisdiction of the U.S. Army Corps of Engineers (USACE) under Section 404 of the Federal Clean Water Act (CWA). This statute requires that any person proposing to discharge dredge or fill material into waters of the U.S. first obtain a permit from the Corps authorizing such discharge. The lateral limit of "waters of the U.S." is the ordinary high water mark, although the presence of adjacent wetlands can expand jurisdiction under some circumstances. Based on the assessment of jurisdictional waters and wetlands performed for this Project (refer to Section 4.3.3 of Appendix E, Biota Report), the four drainages on-site are not tributary to navigable waters; therefore, no Waters of the U.S. are present on the Project site and Section 404 of the CWA would not be applicable to the proposed Project.

5.7.1.2 State

5.7.1.2.1 California Endangered Species Act. Section 2080 of the California Endangered Species Act (CESA) prohibits the "take" of state-listed Threatened and Endangered species. As defined in Section 86 of the California Fish and Game Code, "take" means to hunt, pursue, catch, capture, or kill, or to attempt any of these activities. If a proposed project may result in "take" of a listed species, an Incidental Take Permit pursuant to Section 2081 of CESA is required from the California Department of Fish and Game (CDFG). Because no state-listed threatened or endangered species are known or suspected to occur on the Project site or along the off-site transmission line route, applicability of this statute to the proposed Project would be contingent on unanticipated discovery of such species.

5.7.1.2.2 California Fish and Game Code (Sections 3503 and 3513). The proposed Project would also be subject to the requirements of Sections 3503 and 3513 of the California Fish and Game Code. These regulations protect all native birds and their nests and make it unlawful to "take" (e.g., hunt, pursue, catch, capture, or kill) any migratory bird and their active nests. Within Los Angeles County, CDFG Region 5 has responsibility for administering these requirements.

5.7.1.2.3 California Fish and Game Code (Sections 1600–1616). Pursuant to Sections 1600-1616 of the California Fish and Game Code, any entity proposing to divert, obstruct, or substantially alter the bed, bank, or channel of a stream or lake must first obtain a Streambed Alteration Agreement from the CDFG. Regulations promulgated by the CDFG define streams to include bodies of water that flow at least periodically or intermittently through a bed or channel having banks and supporting aquatic life, including watercourses having surface or subsurface flow that supports or has supported riparian vegetation. Jurisdiction under this statute encompasses all portions of the bed, banks, and channel of any stream, extending laterally to the upland edge of riparian vegetation. Within Los Angeles County, CDFG Region 5 has responsibility for administering these requirements.

5.7.1.3 Local

5.7.1.3.1 Los Angeles County General Plan.

Conservation and Open Space Element Policy 7. Preserve significant ecological areas and habitat management areas by appropriate measures, including preservation, mitigation, and enhancement.

5.7.1.3.2 Antelope Valley Areawide General Plan.

Policy Statement 69. Protect significant vegetation such as the Joshua Tree.

Policy Statement 123. Preserve the Antelope Valley's SEAs in as viable and natural a condition as possible, recognizing the resource values at stake and the constraints imposed by competing priorities and objectives.

Policy Statement 141. Prohibit the harvesting of Joshua or juniper trees for fuel purposes or for transplantation out of their normal habitat area.

5.7.1.3.3 Kern County General Plan.

Transmission Lines Policy 6. The County should encourage new transmission lines to be sited/configured to avoid or minimize collision and electrocution hazards to raptors.

5.7.2 Environmental Setting

The Project site is located in the western Antelope Valley in unincorporated Los Angeles County, approximately 15 miles northwest of downtown Lancaster and approximately 1.5 miles south of Kern County. SR-138 traverses the Project site, which occupies areas both north and south of SR-138. The majority of the Project site was used for agricultural production between the 1950s and mid-1990s with the last crop (onions) produced on approximately 80 acres south of SR-138 in 2004. Vegetation on the site is in the process of recovering from this previous disturbance. The Project site (refer to Figure 5.7-1) is not adjacent to existing development, and is bordered by undeveloped lands and agricultural areas in all directions. The Project is located within the Mojave Desert geographical region (Sawyer and Keeler-Wolf 1995). A map of the study area and vicinity is presented on Figure 4.3-1, a topographic map of the area is presented on Figure 4.3-2, and Figure 4.3-3 shows a recent aerial photograph of the Project site.

Biological field investigations for the proposed Project in support of the EIR and the Biota Report (Appendix E) began on June 27, 2008 and were completed on June 10, 2009. A complete list of the survey dates and times, description of survey activities, personnel involved, and portions of the site surveyed for all biological field investigations performed in

2008 and 2009 is presented in Table 4-1 of Appendix E (Biota Report). Field survey methods are described in detail in Sections 4.2 through 4.9 of Appendix E.

During preparation of the Biota Report in 2009, surveys of the proposed transmission line route along 170th Street West were performed concurrently with surveys of the Project site (see Appendix E). However, subsequent adjustments to the proposed alignment within Kern County necessitated expanding the transmission line study area, and conducting additional surveys within the additional area. The expanded study area is typically approximately 200 feet wide, and is located along the west side of the public road ROW between the Los Angeles/Kern County line and Kingbird Avenue (approximately 0.5 mile), and on the east side of the public road ROW between Kingbird Avenue and Astoria Avenue south of the planned Whirlwind Substation site (approximately 1.5 miles). North of Astoria Avenue, in the vicinity of the planned Whirlwind Substation, the study area expands further, and encompasses an irregular polygon measuring up to approximately 1,000 feet wide along the longest axis. The proposed transmission line route, including the expanded study area, is presented graphically on Figures 5.7-8A and 5.7-8B.

A supplemental biological survey of the expanded off-site transmission line study area in Kern County was performed on January 15, 2010 utilizing field survey methods consistent with the 2008/2009 surveys where access permitted. Generally, this included all portions of the proposed route between the Los Angeles/Kern County line and Astoria Avenue (Holiday Avenue). Because the lands within the expanded study area north of Astoria Avenue (Holiday Avenue), as shown on Figure 5.7-8B, are under private ownership, and were not accessible for survey at the time of the supplemental field investigations, no biological surveys were conducted on these lands in support of this Draft EIR. Rather, baseline biological conditions within this area are derived from the underlying environmental documentation prepared for the Tehachapi Renewable Transmission Project (TRTP), which included the Whirlwind Substation. The California Public Utilities Commission (CPUC) and U.S. Forest Service prepared a joint Final EIS/EIR for the TRTP in October 2009, which included a Revised Biological Resources Specialist Report (Aspen 2009) describing the existing biological setting.

5.7.2.1 Project Site

The Project site consists of approximately 2,100 acres (3.3 square miles) of land that was previously used for agricultural activities. Early successional communities such as California annual grasslands have colonized the previously farmed fields, and shrub-dominated communities have developed as well. In one small area in the northern portion of the site, Joshua tree seedlings have taken root. The site is zoned A-2, a heavy agricultural designation used for commercial agricultural operations on parcels exceeding 2 acres in size. Currently,

there are no active agricultural uses on the site. The last crop was cultivated on the site in 2004, on an 80-acre area south of the existing on-site ranch house and abandoned orchard.

The Project site is located in the western Antelope Valley on valley fill deposits. The Project site is characterized by relatively flat-lying topography with elevations on-site ranging from approximately 2,600 to 2,720 feet. There are no unusual and/or significant landforms or geologic features associated with the Project site. There are four ephemeral washes traversing portions of the Project site; refer to Section 5.7.2.1.2 for more information.

Two Los Angeles County-designated Significant Ecological Areas (SEA), SEA #60 and SEA #57, occur in the vicinity of the Project site. As shown on Figure 5.7-1, the 4,430-acre SEA #60 designation comprises nine discrete habitat fragments within the Project region, rather than a single, contiguous area. The designated areas mostly contain relatively undisturbed Joshua tree woodlands, and are characteristic of the Antelope Valley's native vegetation. The intervening lands between the habitat blocks that make up SEA #60 presumably contained Joshua tree woodlands at some point in the past, but have been disturbed by historical human uses and no longer exhibit this habitat. Thus, there is no longer an intact, connected Joshua tree woodland habitat within the SEA. Portions of the northern and eastern Project site are adjacent to two SEA #60 areas that contain Joshua tree woodland habitat, and the western portion of the Project site is located in the near vicinity of another SEA #60 area. The initial Project application for a CUP in March 2009 proposed a facility area that included an approximately 20-acre area in the northwestern portion of the Project site located within the designated Joshua Tree Woodland SEA #60 (no Joshua trees or Joshua tree woodland habitat occur within the 20-acre area). However, the Project site boundaries were subsequently revised to exclude this 20-acre area, such that the site would not overlap SEA #60.The Fairmont-Antelope Butte SEA (SEA #57) comprises approximately 5,567 acres. It contains wildflower fields, rolling hills, and rocky outcrops that are uncommon in the Antelope Valley. The southeast corner of Project site is roughly 850 feet northwest of the Fairmont-Antelope Butte SEA (SEA #57).

5.7.2.1.1 Vegetation Communities. Vegetation mapping of the Project site was conducted by URS biologists in 2008 and 2009, including spring surveys in 2009, as described in Section 4.2.1 of Appendix E (Biota Report). Vegetation communities on-site were delineated based on field surveys and observations, the wetland delineation results (see Appendix E, Biota Report), a reference site visit to the Antelope Valley California Poppy Reserve, and aerial photograph interpretation. Vegetation community boundaries were delineated in the field with the use of Trimble and Garmin global positioning system (GPS) units. Four natural vegetation communities occur on the Project site (Figure 5.7-2). These natural vegetation communities include rabbitbrush scrub, California annual grassland, Joshua tree recruitment area, and wildflower field. In addition, four disturbed or human-converted land cover types occur on the Project site including orchard (abandoned), agricultural, ruderal, and ornamental

vegetation. The results of the vegetation mapping for the site are shown on Figure 5.7-2. For detailed descriptions of the existing vegetation communities within the Project site, including acreages, dominant plant species, and use by wildlife, refer to Section 4.2.2 of the Biota Report (Appendix E).

Of the four vegetation types occurring within the Project site, two are considered to be sensitive natural communities: wildflower fields and Joshua tree recruitment area. Wildflower fields are designated as a sensitive natural community by the CDFG. Joshua tree recruitment area has no formal sensitivity designation, but is considered to be a sensitive natural community for purposes of this analysis because of Los Angeles County's expressed concern regarding the continuing loss and degradation of Joshua tree woodlands in the Antelope Valley. Successful recruitment of Joshua trees into adjacent habitat is relatively rare in the Project region, and indicates that the yucca moth (*Tegeticula synthetica*) that pollinates these trees is present in the vicinity. The wildflower field area is in the southernmost portion of the Project site, and totals approximately 236 acres. On January 13, 2009, URS biologists conducted an inventory of individual Joshua trees within the Project site boundary. The methods for this inventory are presented in Section 4.4.1.1.1 of the Biota Report (Appendix E). The January 13, 2009 Joshua tree inventory identified 50 Joshua tree seedlings within the 7.3-acre recruitment area in the northern portion of the site adjacent to SEA #60 (refer to Figure 5.7-2; see also Section 4.4.2.1 of Appendix E, Biota Report, for detailed results). In addition to seedlings within the recruitment area, the Joshua tree inventory detected one mature Joshua tree and two seedlings located along 170th Street West within the interior of the Project site. The defining habitat characteristics of these sensitive natural communities, including observed and expected use by common and special-status wildlife, are presented in Sections 4.2.2.3 and 4.2.2.5 of Appendix E, Biota Report. Results of the botanical surveys and Joshua tree inventory are presented in Sections 4.4.2 and 4.4.2.1 of the Biota Report, respectively.

5.7.2.1.2 Jurisdictional Waters and Streams. According to the Watershed Boundary Dataset prepared by the California Interagency Watershed Mapping Committee (CalWater), which is responsible for all interagency watershed mapping and dataset creation in the state of California, the Project site is within the Antelope hydrologic unit of the South Lahontan hydrologic region. The Project site is located towards the eastern (downstream) end of the Antelope Valley planning watershed. A formal delineation of waters of the U.S. (including wetlands) and CDFG-jurisdictional streambeds was performed on the Project site on January 13 and 14, 2009. Surveyors investigated potential drainages previously identified through examination of the USGS Fairmont Butte quadrangle map, the Antelope Valley Soil Survey (USDA-NRCS 1970, USDA-NRCS SSURGO 2007), the National Hydrography Dataset (USGS 2007), and a high-quality aerial photograph of the Project site and the surrounding area (NAIP 2005). Boundaries of drainages were mapped using a sub-meter accurate Trimble GeoXT GPS unit. In addition, all jurisdictional drainages were assessed for wetland

characteristics, based on data collected at six sampling points. Details of the assessment methods are presented in Section 4.3.2 of the Biota Report in Appendix E.

The jurisdictional delineation for the proposed Project identified a total of four jurisdictional streams within the Project site. Characteristics of these streams are summarized in Table 5.7-1, and the results of the field investigation are presented graphically on Figure 5.7-3.

Drainage patterns within the site are muted, with on-site drainages present but isolated from one another and lacking the hierarchical tributary structure found in more substantial stream systems. All of the drainages delineated within the Project site convey flows in a generally west to east direction, and exhibit defined beds, banks, and channels. Due to the ephemeral and intermittent flow regimes of the drainages on-site, no suitable habitat for aquatic or semi-aquatic species exists within these drainages. No riparian plant communities are present within the Project site. The drainage channels on-site are vegetated with upland plant communities in most areas. The Project site contains a total of four CDFG jurisdictional streams, none of which are subject to federal jurisdiction under the CWA because they are not tributary to navigable waters. The four drainages are subject to the authority of the CDFG and the Lahontan RWQCB pursuant to Section 1600 et seq. of the California Fish and Game Code and the Porter-Cologne Water Quality Control Act, respectively, and the total jurisdictional area of these streams totals 4.58 acres. Refer to Section 4.3.3. of Appendix E, Biota Report, for more information.

5.7.2.1.3 Plants and Wildlife. Focused floristic (botanical) surveys were conducted on the Project site between March and May 2009. Surveys were conducted in accordance with USFWS, CDFG, and California Native Plant Society (CNPS) guidelines by URS biologists and a subcontracting botanist, all of whom are familiar with plant species that occur in the Western Mojave Desert/Antelope Valley region of Los Angeles County. The survey methods are presented in the Biota Report for the Project, included in Section 4.4.1 of Appendix E, Biota Report. The majority of the Project site north of SR-138 contains abundant rubber rabbitbrush (*Ericameria nauseosa*), with patches of Davidson buckwheat (*Eriogonum davidsonii*), Kellogg's tarweed, fiddleneck (*Amsinckia tesselata*), goldfields (*Lasthenia californica*), and slender comb seed (*Pectocarya linearis* ssp. *ferocula*), interspersed with small wirelettuce (*Stephanomeria exigua*), Lemmon's lessingia (*Lessingia lemmonii*), and annual bursage (*Ambrosia acanthicarpa*) in the more disturbed areas, particularly along road edges. Red-stem filaree (*Erodium cicutarium*) and cheatgrass (*Bromus tectorum*) are widespread throughout the site, especially between the more established grassland and scrub habitat areas. The Project site south of SR-138 is dominated by annual native and non-native grasses and forbs consisting mostly of cheatgrass, small fescue, fiddleneck, bicolored lupine (*Lupinus bicolor*), goldfields (*Lasthenia californica*), and California poppy (*Eschschlozia californica*). For a complete list of plants observed within the Project site during biological

field investigations, and estimates of relative abundance of these species on-site refer to Appendix E of this EIR, Biota Report: Appendix I.

The various plant communities on the Project site provide habitat for different communities of invertebrates, reptiles, birds, and mammals. Between June 2008 and June 2009, URS biologists conducted several biological field investigations intended to identify the wildlife species that utilize the site. Although the Project site provides habitat for approximately 47 common species of butterfly, there are no vegetation types or nectar sources that provide habitat for any special-status butterfly species (see Appendix L of the Biota Report). There is no permanent or seasonal standing or flowing water on the site. All stream channels within the Project area are intermittent or ephemeral (containing water only during and shortly after precipitation events), and are not hydrologically connected to any other streams or water bodies that could serve as a source population for aquatic species. Therefore, no fishes occur on the site. Due to the lack of perennial aquatic habitat, and because the soils within the Project site are sandy, well-drained, and do not hold moisture for long periods, no amphibian species are expected to occur on the Project site. No suitable breeding habitat (vernal pools, ponds, or puddles) was noted for desert-adapted species such as the western spadefoot toad (*Spea hammondii*) or the red-spotted toad (*Anaxyrus* [*Bufo*] *punctatus*). Fishes and amphibians are therefore not discussed further in this EIR.

Seven common species of reptiles, comprised of 4 lizard species, and 3 snake species were observed during field surveys. Lizard species observed included desert horned lizard (*Phyrnosoma platyrhinos*), Great Basin whiptail (*Aspidoscelis tigris* ssp. *tigris*), side-blotched lizard (*Uta stansburiana*), and long-nosed leopard lizard (*Gambella wislizenii*). Snake species observed included Mojave rattlesnake (*Crotalus scutulatus*), gopher snake (*Pituophis catenifer*), and coachwhip (*Masticophis flagellum*). Additional common reptile species expected to occur, but not observed on the Project site or along the proposed transmission line route include the yellow-backed desert spiny lizard (*Sceloporus magister uniformis*), Great Basin collared lizard (*Crotaphytus bicinctores*), and California kingsnake (*Lampropeltis getula*).

Within the Project site, 48 bird species were observed during field surveys. The most common species found on the site during surveys was the horned lark (*Eremophila alpestris*). More information regarding the bird species occurring within the Project site is presented in Appendix E, Biota Report, Sections 4.5, 4.6, and 4.9.2.5.

Common mammal species observed or detected via sign (tracks, scat, burrows) on the Project site include Botta's pocket gopher (*Thomomys bottae*) (mounds), white-tailed antelope squirrel (*Ammospermophilius leucurus*) (numerous burrows and individual sightings), abundant sightings of black-tailed jackrabbits (*Lepus californicus*), several desert cottontails, several coyotes (*Canis latrans*) (including two dens with young, and abundant tracks and

scat), and an unidentified rodent (assumed kangaroo rat [*Dipodomys* sp.] based on hind feet and tail drag tracks). Several bat species may forage over the site, as they have ranges which include the vicinity of the Project site, and are known to make use of desert type habitats.

Although not observed during biological field investigations, the Project site and proposed transmission line route contain open habitats with scattered shrubs that are suitable for use by the desert kit fox (*Vulpes macrotis arsipus*). The desert kit fox maintains no formal federal, state, or local sensitivity designation, and is therefore not considered to be a special-status species. However, CDFG regulations prohibit the take of this species at any time (see 14 CCR 460), and projects must therefore be designed to avoid injuring or killing this species. The desert kit fox is primarily nocturnal, and occupies underground dens during daylight hours. Prey generally consist of small mammals, including black-tailed jackrabbits, desert cottontails, and kangaroo rats and other rodents, although birds, eggs, and insects are occasionally taken as well.

Invertebrates observed during field surveys included harvester ant (*Pogonomyrmex barbatus*), velvet ant (*Dasymutilla occidentalis*), grasshoppers (family Acrididae), and bombardier beetles (family Carabidae). Harvester ant hills, both active and inactive, were observed scattered throughout the Project site. The literature review identified 13 special-status butterfly species with the potential to occur within the region. However, the potential for these species to occur within the Project site was determined to be "absent" due to habitat limitations within the site. Therefore, no special-status butterflies are anticipated to occur within the Project site. For a list of common and special-status butterfly species and the assessment of their potential to occur within the Project site, refer to Appendix E of this EIR, the Biota Report: Appendix L. Appendix E, Section 5.2.3, addresses the potential for yucca moths (Joshua tree pollinators) to be present on the site (and transmission line route) and assesses potential Project impacts.

For a complete list of wildlife observed within the Project site during biological field investigations, and estimates of relative abundance of these species on-site, refer to Appendix E of this EIR, Biota Report: Appendix J.

5.7.2.1.4 Special-status Species. The surveys conducted for the Project did not detect the presence of any special-status plants. Two sensitive natural communities, wildflower fields, and Joshua tree recruitment area, are present on portions of the site. Twelve special-status plant species that were not observed during biological surveys, including one species listed as threatened by the State, have the potential to occur on the Project site, based on the literature review (CDFG 2008a) and the presence of suitable habitat (Table 5.7-2). Descriptions of these species, including known occurrence, habitat, and range restrictions are provided in Section 4.11.1 in Appendix E, Biota Report.

The biological field investigations detected a total of 15 special-status wildlife species on the Project site. No special-status mammals, amphibians, fishes, or invertebrates were observed within the Project site. Special-status wildlife species detected included one reptile and 14 bird species. An individual Blainville's horned lizard (*Phyrnosoma blainvillii*, California Species of Concern [CSC]) was observed on the Project site on March 24, 2009. It is presumed that the coast horned lizard potentially occurs throughout the Project site, due to the presence of suitable habitat. Of the 14 special-status birds detected on-site, three were detected during a season other than which they are assigned special status, or were judged to be migrants. The special-status species detected on-site included: the Brewer's sparrow (out-of-season or migrant), burrowing owl, greater roadrunner, lark sparrow, loggerhead shrike, long-eared owl, merlin, mountain bluebird, northern harrier (out-of-season or migrant), prairie falcon, tricolored blackbird, Vaux's swift (migrant), vesper sparrow, and western meadowlark. Special-status wildlife species observed within the Project site during biological field surveys are summarized in Table 5.7-3 and are discussed in additional detail in Section 4.10 of Appendix E, Biota Report.

In addition to the special-status species described above, 14 special-status wildlife species that were not observed during biological surveys, including three State or federally listed species, were identified as having a potential to occur on the Project site based on the species' geographic ranges and the availability of suitable habitat (Table 5.7-4). These species include two reptiles, eight birds, and five mammals. Descriptions of these species, including known occurrences, habitat, and range restrictions are provided in Section 4.11.2 of the Biota Report included in Appendix E.

5.7.2.1.5 Wildlife Movement. No regional wildlife movement corridors are known to exist on the floor of the Antelope Valley in the vicinity of the Project site (South Coast Wildlands 2008, and CDFG 2008b). Within the Project site, the on-site drainages provide local travel routes for wildlife (refer to Figures 5.7-2 and 5.7-3), as evidenced by the quantity of tracks observed within the drainages during field surveys. Although the on-site drainages allow for local wildlife movement within the Project site, there was no evidence that these features constitute wildlife corridors connecting adjacent or nearby isolated blocks of habitat (i.e., Joshua tree woodland habitat). The gentle topography and vegetation types found on the Project site would not constrain the local movements of wildlife across the site. Wildlife movement patterns in the Project vicinity are more fully described in Sections 3.2.5 and 4.12 of the Biota Report, presented in Appendix E.

5.7.2.2 Off-site Transmission Line Route

The proposed off-site 230-kV transmission line route is approximately 3.5 miles in length, and follows 170th Street West in a northerly direction to the planned SCE Whirlwind Substation located in Kern County. The portion of the transmission line route in Kern County

is proposed to be constructed on private lands adjacent to 170th Street West and within the public road ROW. Because the exact alignment for the portion of the transmission line route in Kern County is subject to minor modification based on Kern County, private land owner, and/or SCE requirements, an expanded study area adjacent to 170th Street West was evaluated for purposes of this Draft EIR (see Figures 5.7-8A and 5.7-8B). The expanded study area is typically approximately 200 feet wide, and is located along the west side of the public road ROW between the Los Angeles/Kern County line and Kingbird Avenue (approximately 0.5 mile), and on the east side of the public road ROW between Kingbird Avenue and Astoria Avenue south of the planned Whirlwind Substation site (approximately 1.5 miles). North of Astoria Avenue, in the vicinity of the planned Whirlwind Substation, the study area expands further, and encompasses a polygon measuring up to approximately 1,000 feet at the widest point. As shown on Figure 5.7-8B, the proposed transmission line route north of Astoria Avenue is located primarily within the public road ROW of 170th Street West within the aforementioned expanded study area.

Existing power lines are located along portions of the proposed Project transmission line route. The existing lines are located near and leading to several residences in the Project vicinity, and occur at the following locations: east-west along West Avenue A8; east-west along West Avenue A; along 170th Street West in Kern County; and east-west along Gaskell Road (Kern County).

The initial Project application for a CUP in March 2009 proposed a transmission line route that traversed approximately 0.4 mile of SEA #60 within the public ROW on the west side of 170th Street West in Los Angeles County north of the Project site. The off-site portion of the proposed transmission line route within Los Angeles County has since been rerouted to the east side of 170th Street West, and no longer traverses any designated SEA (see Figure 5.7-1).

The transmission line conductors (wires) would be made of non-reflective material and would typically be supported on approximately 46 tubular steel poles (50 to 125 feet tall) of a color (as approved by LACDRP) that would minimize the visual impact. The transmission poles would typically be approximately 4 to 6 feet in diameter (at the base, tapering upward) and would be located approximately every 700 feet (on average) between the on-site substation and the off-site interconnection point (i.e., planned SCE Whirlwind Substation). Larger poles, would be required at angle or dead-end points on the transmission line due to greater lateral load on the poles (see Figure 4.4-6).

The transmission poles would be set in concrete foundations that would be 20 to 30 feet deep. The permanent pole footprints including surrounding concrete foundation would typically be approximately 6 to 8 feet in diameter depending on location occupying a maximum area of about 50 square feet each (0.001 acre). All poles would be grounded using ground rods or other suitable means. Additionally, shield wire would be attached to the

ground wire for lightning protection. To minimize corona noise, the diameter of the conductors has been optimized and corona rings would be installed at all conductor attachment points.

5.7.2.2.1 Vegetation Communities. Vegetation mapping of the proposed off-site transmission line route was conducted during focused botanical surveys in April and May 2009, and during a supplemental assessment in January 2010 of an expanded study area in Kern County outside but bordering the public road ROW of 170th Street West, as described in Section 5.7.2.2 above. In portions of the study area that were not accessible due to private ownership, the Biological Resources Specialist Report for the TRTP EIR/EIS (Aspen 2009) was used as a source of baseline information.

The proposed transmission line route would generally follow the existing alignment of 170th Street West. In the Los Angeles County portion of the route, construction areas would be limited to the road ROW, mostly comprised of the developed roadbed and adjacent shoulder, on the east side of 170th Street West. In Kern County, where the route would potentially be set farther back from 170th Street West, outside the road ROW, it would traverse mostly disturbed or human-converted land cover types. However, three natural vegetation communities occur along the proposed transmission line route (Figures 5.7-4 and 5.7-8A and 5.7-8B). These natural vegetation communities include rabbitbrush scrub, Joshua tree woodland, and desert saltbush scrub. In addition, five disturbed or human-converted land cover types occur on the proposed transmission line route, including development (primarily in the roadbed), orchard, agricultural, ruderal, and ornamental vegetation. The majority of the plant species observed along the proposed transmission line route consisted of rubber rabbitbrush, ruderal species including Russian thistle (*Salsola tragus*) and mustards (*Sisymbrium* and *Brassica* spp.), and agricultural crops.

Of the vegetation communities along the transmission line route, only Joshua tree woodland is considered to be a sensitive natural community. Joshua tree woodland has no formal sensitivity designation, but is considered to be a sensitive natural community for purposes of this analysis because of Los Angeles County's expressed concern regarding the continuing loss and degradation of Joshua tree woodlands in the Antelope Valley. The proposed transmission line route traverses the western edge of approximately 0.5 mile of Joshua tree woodland (and disturbed road shoulder) in the public ROW on the east side of 170th Street West in Los Angeles County. The proposed transmission line route, including the expanded study area within Kern County does not support this vegetation community. The proposed transmission line route in or near the public road ROW of 170th Street West in Los Angeles County is located on the western edge of the Joshua tree woodland habitat and includes a mixture of disturbed road shoulder as well as limited Joshua tree woodland habitat in the Project disturbance footprint. The defining habitat characteristics of this sensitive natural community, including observed and expected use by common and special-status wildlife, are

presented in Section 4.2.2.4 of Appendix E, Biota Report. Results of a Joshua tree inventory of the transmission line route are presented in Section 4.4.2.1 of the Biota Report.

5.7.2.2.2 Jurisdictional Waters and Streams. URS biologists performed a formal delineation of waters of the U.S. (including wetlands) and CDFG-jurisdictional streambeds along the proposed transmission line route on January 13 and 14, 2009. No jurisdictional waters or streambeds occur along the proposed transmission line route. The jurisdictional delineation results are presented on Figure 5.7-3 and in Section 4.3.3 of the Biota Report in Appendix E.

5.7.2.2.3 Plants and Wildlife. The various plant communities along the proposed transmission line route provide habitat for different communities of invertebrates, reptiles, birds, and mammals. Because the proposed transmission line route is located primarily in the developed road ROW of 170th Street West in Los Angeles County and other human-converted land cover types in Kern County, use of the area by wildlife is limited. In natural habitats adjacent to the roadbed in Los Angeles County and in the desert saltbush scrub at the northern end of the route, use by common plants and wildlife is similar to that which occurs within the Project site. For a complete list of plants observed along the transmission line route during biological field investigations, and estimates of relative abundance of these species on-site, refer to Appendix I of the Biota Report, included in Appendix E of this EIR. For a complete list of wildlife observed along the proposed transmission line route, and estimates of relative abundance, refer to Appendix J of the Biota Report.

5.7.2.2.4 Special-status Species. Biological field surveys did not detect the presence of any special-status plants along the proposed off-site transmission line route. Twelve special-status plant species that were not observed during biological surveys have the potential to occur along the proposed transmission line route based on geographic distributions and the presence of suitable habitat. Descriptions of these species, including known occurrence, habitat, and range restrictions, are provided in Section 4.11.1 in Appendix E, Biota Report.

The biological field investigations in 2009 and 2010 detected a total of nine special-status wildlife species along the proposed transmission line route, all of which were birds. Three of the species detected were judged to be migrants, based on the species' range and time of occurrence. Special-status wildlife detected along the proposed transmission line route included the chipping sparrow (migrant), lark sparrow, Lawrence's goldfinch, loggerhead shrike, prairie falcon, tricolored blackbird, western meadowlark, yellow warbler (migrant), and yellow-breasted chat (migrant). Descriptions of these species, including regulatory status and habitat requirements, are summarized in Table 5.7-3 and are presented in detail in Section 4.10.1.2 of the Biota Report, Appendix E of this EIR. No federally- or state-listed threatened or endangered species were observed during surveys of the proposed transmission line route.

In addition to the species described above, 15 special-status wildlife species that were not observed during biological surveys were identified as having a potential to occur along the proposed transmission line route due to the species' geographic distributions and the availability of suitable habitat. The species include two reptiles (California legless lizard and desert tortoise), eight birds, and five mammals. Although the proposed transmission line route is within the historic range of the desert tortoise (*Gopherus agassizii*, ESA-threatened, CESA-threatened), current distribution data and range maps indicate that the transmission line route is outside the known range for this species (Bransfield 2009, CDFG 2008b). Additionally, no sign of desert tortoise was found during the various biological surveys conducted along the transmission line route in 2009. Brief descriptions of these species, including regulatory status and habitat requirements, are summarized in Table 5.7-4. More detailed descriptions of these species, including known occurrences, habitat requirements, geographic distributions, and probability of occurrence, are provided in Section 4.11.2 of the Biota Report in Appendix E.

5.7.2.2.5 Wildlife Movement. Similar to the Project site, no regional wildlife movement corridors are known to exist on the floor of the western Antelope Valley in the vicinity of the proposed transmission line route (see Figure 5.7-5). For a more detailed discussion of wildlife movement in the Project region, please refer to Section 4.12 of Appendix E, Biota Report.

5.7.3 Project Impacts

This section describes the potential direct, indirect, and cumulative impacts of the proposed Project on biological resources, and identifies those impacts determined to be significant or potentially significant, as applicable. For each potentially significant impact identified, this section also recommends feasible mitigation measures that would avoid or substantially lessen the impact.

5.7.3.1 Methodology and Significance Criteria

For the purposes of this assessment, the significance criteria assessed in the CEQA Initial Study for the proposed Project, issued by Los Angeles County on April 13, 2009, have been utilized to determine impact significance. The Project's impacts on biological resources would be considered potentially significant if:

- Project-related grading, vegetation clearance and mowing, or site development would remove substantial natural habitat areas
- The proposed Project would have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFG or USFWS

- The proposed Project would divert, obstruct, or substantially alter a drainage course depicted on USGS quad sheets as a dashed blue line or that may contain a bed, channel, or bank of any perennial, intermittent or ephemeral river, stream, or lake
- The proposed Project would result in a substantial adverse effect on oak or other unique native trees
- The proposed Project would have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFG or USFWS
- The proposed project would interfere substantially with any wildlife corridor, adjacent open space linkage, and any identified resources nearby and on the site
- The proposed Project would adversely affect SEA resources, including linkages to other SEAs, or undisturbed habitats

5.7.3.2 Impact Analysis

Within the Project site, the proposed Project would involve the placement of solar PV panel arrays, supporting buildings, and associated access-related and electrical infrastructure. Construction of these elements over the planned 38-month construction phase would necessitate the removal and/or modification of existing vegetation and land covers in most areas. In addition, operation of the Project's solar arrays would have a long-term effect during the operational phase (estimated at 30 years) on habitats through shading, noise, and proposed vegetation trimming for fire protection purposes. Project-related impacts on biological resources would ultimately be a combination of the construction-related and operational impacts of the Project, and these impacts are sometimes intertwined due to the physical arrangement of the proposed construction zones and shaded areas. Construction-related and operational-phase impacts are discussed separately in this analysis and clarified as to Project phase, where appropriate.

5.7.3.2.1 Criteria 1: Would Project-related grading, vegetation clearance and mowing, or site development remove substantial natural habitat areas?

Construction.

Potential Impact 5.7-1: Removal and alteration of natural habitat areas.

Facility Site. The Project site occupies approximately 2,100 acres, of which approximately 2,044 acres contain natural vegetation. For the purposes of the biological resources impact assessment, the more precise acreage is 2,062 acres. The biological field investigations conducted in the spring of 2009 identified four natural vegetation communities within the Project site as follows: rabbitbrush scrub, California annual grassland, wildflower

field, and Joshua tree recruitment area. Several anthropogenic, non-natural communities and land covers are also present, but removal of these vegetation types is not considered "removal of natural habitat areas," due to their anthropogenic nature. Impacts of vegetation removal on nesting birds are addressed in Section 5.7.3.2.5, Criteria 5, below.

Construction of the proposed Project would require that all trees and shrubs within the development envelope be removed, and that the site (except for avoidance areas, see Figures 5.7-6 and 5.7-7, and Table 5.7-5) be initially mowed to a height of 3-6 inches to facilitate installation of solar arrays, supporting structures, and associated electrical and transportation-related infrastructure. Initial vegetation mowing would occur on approximately 1,955 acres of the Project site, of which 1,937 acres contain natural habitat areas. Further, although complete grading of the site is not proposed, grading would be required to facilitate construction of some Project elements, including the O&M building, fire breaks, and approximately 9,600 small infiltration basins (see Figures 5.7-6 and 5.7-7, and Table 5.7-5). The proposed on-site grading would remove approximately 990 acres of existing land covers, of which 969 acres currently contain natural habitat areas.

As described above, grading and initial vegetation mowing during construction would result in the permanent and temporary removal of existing vegetation. In areas that would be directly occupied by Project facilities (permanent access roads, buildings, solar panel foundations, fire breaks, etc.), and would not be vegetated in the post-Project condition, this habitat loss would be permanent. The proposed infiltration basins have also been treated as permanent habitat losses in this analysis, because although they would be allowed to revegetate passively, maintenance of these features would subject them to ongoing disturbance. Locations of permanent habitat removal would lose all habitat value, and would comprise approximately 731 acres, including 516 acres of rabbitbrush scrub, 136 acres of California annual grassland, and 79 acres of wildflower field. Section 5.7.3.2.3 discusses the loss of sensitive vegetation communities.

Some of the construction-related grading and mowing would occur in locations where these activities would be necessary to accommodate construction, but where the disturbed area would not be within the footprint of the project component being constructed. In these locations, the construction-related vegetation removal would be temporary, and the vegetation would be allowed to recover after construction. However, despite the temporary nature of the construction-phase impacts, these areas would be permanently affected by operational effects of the Project, as described below.

Off-site Transmission Line. Common natural vegetation types occurring within the public road ROW along both sides of 170th Street West in Los Angeles and Kern counties, including the expanded study area in Kern County, include rabbitbrush scrub and desert saltbush scrub. In addition, one sensitive natural community is present in this area: Joshua

tree woodland occurs along the public road ROW on the east and west sides of 170th Street West, partly within SEA #60. The proposed transmission line would be installed on the opposite side of 170th Street West from SEA #60 (crossing to the east side of the street at the northern Project site boundary, where SEA #60 occupies the west side), thereby avoiding SEA #60 and the Joshua tree woodland therein (see Figure 5.7-8A). However, transmission line poles would be constructed within mapped Joshua tree woodland outside of SEA #60, as described below. Along the off-site transmission line route, the proposed Project would construct a total of 36 tubular steel poles and approximately four temporary stringing sites, connecting the Project site to SCE's planned Whirlwind Substation. As described in Section 4.0 of this Draft EIR, each transmission line pole would have an associated temporary construction disturbance zone measuring approximately 50 by 100 feet (area of 0.11 acre per pole), and the temporary stringing sites would measure 50 by 200 feet (area of 0.23 acre per stringing site). These temporary impact areas would not be graded, but would be disturbed by heavy machinery, such as cranes, during construction. Following completion of construction, these areas would be allowed to recover and become vegetated passively (active seeding of these areas following construction is not proposed). The only permanent habitat loss associated with construction of the transmission line would be associated with the footprint of the tubular steel poles themselves (typically 8-foot diameter for each pole, including foundation, equating to approximately 50 square feet or 0.001 acre per pole of permanent habitat loss).

Within the Los Angeles County portion of the route, poles would be constructed within the ROW of 170th Street West, and equipment access to the construction zones would be attained directly from the roadway. In Kern County, the transmission line poles south of Astoria Avenue as currently proposed would be constructed on private lands outside the road ROW, as shown of Figures 5.7-8A and 5.7-8B, and direct access from 170th Street West would not be possible. To facilitate equipment access in these locations, unimproved equipment access routes (pathways) would be designated perpendicular to 170th Street West between the roadway and the construction zone for each pole. These routes would be equipment-width (20 feet wide), and would vary in length depending on the distance from the roadway to the proposed pole location. As proposed, these pathways would occur only in non-natural habitats (refer to Figure 5.7-8A, Sheet 2 of 2).

Of the 36 proposed off-site transmission pole locations, 5 are located within mapped Joshua tree woodland, 6 are located within rabbitbrush scrub, and 5 are within desert saltbush scrub. Construction of the transmission line would result in permanent loss of 0.16 acre of natural habitats, comprised of 0.05 acre of Joshua tree woodland, 0.06 acre of rabbitbrush scrub, and 0.05 acre of desert saltbush scrub. The remaining 20 off-site pole locations are located within non-natural habitats, such as agricultural fields, orchards, and developed and disturbed areas. Construction of the proposed transmission line as described above would temporarily disturb approximately 0.1 acre of the Joshua tree woodland, 0.8 acre of rabbitbrush scrub, and 0.1

acre of desert saltbush scrub within the temporary construction zones and stringing sites, but would allow these areas to become revegetated passively following construction. No Joshua trees would be removed during construction of the proposed transmission line route, as the proposed pole locations have been sited to avoid this resource. For a more detailed discussion of impacts to native trees, refer to Section 5.7.3.2.4.

Summary of Construction Impacts. In total, construction of the proposed Project (including activities within the Project site and along the transmission line route, as discussed above) would adversely affect 1,937 acres of existing natural habitats during the initial vegetation mowing process. Of this total, approximately 731 acres would be permanently removed and replaced by Project elements such as roads, buildings, fire breaks, infiltration basins, and solar panel footings. The remainder of the development footprint would be subjected to temporary construction-phase impacts, and would sustain permanent impacts due to project operations (discussed below). These impacted acreages are subdivided into constituent habitat impacts in Table 5.7-5. Due to the substantial permanent and temporary removal of existing natural habitats within the Project site, impacts of Project construction on existing natural habitat areas would be potentially significant, absent mitigation.

Mitigation Measures 5.7-1 (Habitat Enhancement and Vegetation Management Plan [HEVMP]) and 5.7-2 (Off-site Mitigation) presented in Section 5.7.5 would substantially lessen this impact by preserving and enhancing 101 acres of existing natural habitats within the Project site, and by acquiring and protecting an additional 450 acres in an off-site location(s) within the Antelope Valley. In total, these measures would permanently preserve, enhance, and manage 551 acres of undisturbed habitat within the Antelope Valley. The proposed mitigation measures would require that the on-site and off-site mitigation lands be managed to contain vegetation communities characteristic of undisturbed lands within the Antelope Valley, including open, forb-dominated habitats as well as limited shrub habitat. By setting the mitigation lands aside for preservation in perpetuity, the proposed mitigation measures would compensate for Project-related habitat loss and help reduce the overall threat of development to biological resources in the Antelope Valley. After incorporation of the proposed mitigation measures, the Project's overall impact on natural habitat areas would be reduced to a less than significant level.

Operation.

Facility Site. Proposed facility operations are discussed in Section 4.4.7 of this Draft EIR. A solar PV power generating facility generally operates with minimal exhausts, waste products, or activity. However, operation of the proposed facility would result in substantial modification of on-site habitats due to effects from shading, mowing for fire prevention, vehicle traffic, and maintenance (see Figures 5.7-6 and 5.7-7, and Table 5.7-5). Within areas where habitat would be permanently removed during construction (including building pads,

fire breaks, infiltration basins, permanent access roads, and other features, see discussion above), the long-term presence of the proposed facilities would permanently occupy the areas and they would be devoid of habitat value. The discussion of operational-phase impacts presented below focuses on those portions of the Project site that are outside the permanent impact footprint, but that would be affected by Project operations. Because several different operational-phase impacts are identified below (shading, mowing, destruction or damage of vegetation by vehicle traffic, etc.), and because the areas affected by these impacts overlap one another, an effort has not been made to quantify habitats affected on an impact-by impact basis. Simply put, out of the approximately 2,044 acres of natural habitats within the Project site, 107 acres are located within proposed avoidance areas (Drainages A, B, and C, and the Joshua tree recruitment area, see Figures 5.7-6 and 5.7-7), and an additional 731 acres would be permanently removed as described above. The remaining 1,206 acres of existing natural habitats within the Project site would be affected by a variety of operational impacts, which would permanently modify these vegetation communities. Impacts from specific aspects of the Project's operations on existing natural habitats are described below.

Within the proposed solar arrays, solar radiation on the ground would be reduced due to shading from the panels. Data on the environmental effects of PV solar installations are limited. However, two previous studies (Smith 1984, Smith et al. 1987) found that physical changes were manifested on the plants underneath the panels, which exhibited phenologic effects including larger individual plant size, a later biomass peak, and delayed senescence. In addition, the presence of solar panels has been found to affect plant community structure, causing a decrease in biomass, an increase in plant diversity in areas where a single grass species was dominant prior to installation of the panels, and an increase in the abundance of non-native species. Changes such as these could reasonably be expected to occur as a result of the proposed Project, and would alter the characteristics of the habitats beneath the panels. In the spaces between the rows of panels, where shading would occur during a portion of the day but would be more limited than directly beneath the panels, it is expected that the vegetation changes identified above would also occur, but with lesser severity than directly beneath the panels.

To comply with Los Angeles County Fire Department fire prevention requirements, vegetation within the Project site would be maintained at a height of 6 inches or lower during the majority of the year (required between May 1 and the end of January) via mechanical mowing except for the avoidance areas indicated on Figures 5.7-6 and 5.7-7, where no mowing would occur. Vegetation maintenance would be performed primarily using a combination of heavy duty (e.g. brush hogger) and medium duty mowers as well as weed whackers for selective cutting and trimming. In addition, approved herbicides would be used to control vegetation along fire breaks and around equipment, and to control noxious weeds in applicable locations. It is expected that vegetation maintenance using mowers would occur for approximately 60 to 90 days out of the year while weed whackers or other hand-held

tools would be used on an as needed basis to control vegetation in selected locations in accordance with Los Angeles County Fire Department requirements, as applicable. The proposed mowing practices would prevent the re-establishment of shrubs and trees within the development envelope, and rabbitbrush scrub vegetation on-site would likely be colonized by herbaceous communities, such as grassland and wildflower fields, as a result. During the period from February 1 through approximately mid-April, mowing practices would be discontinued, and vegetation would be permitted to grow to a maximum height of 18 inches (maintained by selective trimming using equipment such as weed whackers) and seed naturally. Because this period overlaps the flowering period of the majority of the herbaceous species on-site, it is expected that some grass and forb cover within the site would be maintained.

Maintenance activities for the proposed solar field have the potential to occur during both daytime and nighttime hours. Electrical equipment maintenance within the solar fields would periodically occur at the individual concrete pads with inverters and transformers within the site (see Figure 4.4-1A). It is expected that light maintenance activities within the solar fields could occur on a daily basis and vary in intensity by activity. However, maintenance activities would typically be performed with small crews working at specific equipment locations requiring maintenance at any one time within the 2,100 acre site. Maintenance equipment would typically be limited to one or more pickup trucks and battery powered/hand tools. More intensive maintenance work for up to 3 days is expected to occur once per month on average and to include the need for a forklift. Nighttime maintenance work would require battery or gas-powered light stands that would be directed to the work area. The typical use of hand tools and small battery powered light stands directed at the work area would minimize potential noise and lighting related effects for the majority of required nighttime work. Maintenance activities would occur on previously disturbed areas and would involve minimal disturbance in localized areas and impacts to natural habitat areas would be expected to be minimal.

During the lifetime of the Project, vehicular access to individual solar panels would occasionally be necessary for maintenance, panel washing, or other purposes. Because the proposed site plan includes only limited permanent access roads within and surrounding the proposed solar arrays (refer to Figure 4.4-1A), vehicular access to the panels would be obtained by driving over the vegetation between the rows of panels. It is anticipated that all required washing and maintenance could be accomplished using rubber-tired equipment, and that heavy, tracked vehicles such as excavators and cranes, which can cause substantial soil compaction, would not be necessary. Maintenance of the panels would be conducted on an as-needed basis, and is anticipated to be required only infrequently. Panel washing would also be very infrequent, estimated to occur twice annually. Because the proposed solar arrays would be arranged in rows, with permanent access roads every ½ mile, maintenance of any particular panel would necessitate a maximum of ¼ mile of off-road vehicular travel. Further,

because nearly all of the plant species that would be present on the Project site during operation are annual grasses and forbs, impacts from vehicular trampling would only affect these species if they occurred during the growing season. The effects of vehicular trampling on vegetation are anticipated to be minimal, due to the relative infrequency with which this effect would occur.

Because the removal of natural habitats would occur during the construction phase of the Project, on-going operations of the facility would not further remove additional habitat. However, the operational impacts discussed above would permanently modify a total of 1,206 acres of existing natural habitats within the Project site.

Off-site Transmission Line. The operation of the transmission line would not result in any further removal of natural habitats within the transmission line route, beyond those removed during construction (discussed above). Along the transmission line route, conductor (transmission line) clearances for underlying vegetation would be maintained in accordance with California Public Utilities Commission (CPUC) General Order (GO) 95 (Rules for Overhead Electric Line Construction). The minimum conductor-to-ground clearance for the proposed 230 kV transmission line is 30 feet (or higher depending on pole type) as shown on Figure 4.4-6. The proposed off-site transmission line route is located in the public road ROW along the portion in Los Angeles County or adjacent private lands that are primarily agricultural or sparsely vegetated with shrubs in Kern County. Maintenance of minimum vegetation clearance distances (10 feet clearance) would require limited, if any, infrequent trimming to meet CPUC GO 95 requirements and any impacts to native habitat would be less than significant. Along the Los Angeles County portion of the route, occasional routine line or pole maintenance could be performed within the existing road ROW using bucket-lift trucks and would not require disturbance or removal of existing vegetation. In Kern County, the 20-foot wide paths accessing the poles would be maintained, as necessary, to control vegetative growth so as to not preclude vehicular access to pole locations; however, these pathways are not proposed in natural habitat areas. The majority of the land adjacent to the public road ROW for 170th Street West in Kern County is flat agricultural land that would require minimal, if any, vegetation maintenance for pole access.

Summary of Operation Impacts. Long-term operations of the proposed facility and transmission line route would entail relatively low levels of activity, and would not regularly include grading or removal of habitat. However, the Project's long-term effects, such as shading from solar panels and vegetation controls, would alter the characteristics of the 1,206 acres of habitats on-site in the post-Project condition. The impacts to natural habitats from facility and transmission line operations would be potentially significant, absent mitigation. The majority of these impacts would occur within non-sensitive vegetation communities; for an evaluation of the Project's impacts on sensitive vegetation, refer to Section 5.7.3.2.3. Mitigation for this impact would be the same as for construction-related loss of natural

habitats (discussed above), and would consist of preserving and enhancing lands on-site (101 acres), as well as in an off-site location(s) within the Antelope Valley (450 acres). Implementation of the proposed mitigation measures would reduce this impact to a less than significant level.

5.7.3.2.2 Criteria 2: Would the proposed Project divert, obstruct, or substantially alter a drainage course depicted on USGS quad sheets as a dashed blue line or that may contain a bed, channel, or bank of any perennial, intermittent or ephemeral river, stream, or lake?

Construction.

Facility Site. The Project site contains portions of four unnamed intermittent and ephemeral stream channels, which occupy a total of approximately 4.58 acres on the site. The on-site drainages are identified as Drainages A, B, C, and D. No improvements or modifications to these drainages are proposed. Drainage A would be protected by a buffer measuring 100-feet wide as measured from the top of each bank along the jurisdictional reach of the channel, for a total width of approximately 215 to 240 feet. This buffer would narrow down to a total width of 100 feet along the reach comprised of a non-jurisdictional swale, and in the downstream-most portion towards the northeastern corner of the Project site. To prevent the potential lateral migration of Drainage A into the solar arrays, buried sheet piles may be installed parallel to the drainage banks, at least 100 feet from the top of the existing bank. Construction of these elements would not result in any disturbance to the existing channel.

Drainage B would be protected by a 20-foot-wide buffer along the entire length. Drainage C would be protected by a minimum 100-foot-wide buffer as measured from the limits of the FEMA Zone A floodplain. Drainage D would be protected by a 50-foot-wide setback along the portion of the channel which lies adjacent to and/or within the Project boundary. Thus, the proposed Project would not divert, obstruct, or substantially alter Drainages A, B, C, and D, and impacts to these channels would be less than significant.

Off-site Transmission Line. The proposed transmission line route does not contain or traverse any jurisdictional waters or streams. One blue-line drainage is present on USGS topographic maps of the area, but this feature was not detected during a field delineation of streambeds conducted for the Project. For more information, please refer to the Jurisdiction Delineation Report, presented within the Biota Report in Appendix E to this Draft EIR. Because no jurisdictional drainages occur along the proposed transmission line route, construction of the transmission line would have no impact on these resources.

Operation.

Facility Site. Since all four drainage channels would be avoided and protected by buffer zones, no operational impacts are expected to occur. Proposed new maintenance access roads would not cross any of the channels, and operational tasks would not be expected to require personnel or vehicles to enter the drainage areas. The buried sheet piles proposed parallel to Drainage A would be installed a substantial distance (100 feet) beyond the active channel of this stream, and would not intercept the existing drainage. Thus, operational requirements for the proposed Project would not divert, obstruct, or substantially alter Drainages A, B, C, and D, and impacts to these channels would be less than significant.

Off-site Transmission Line. As stated above, the proposed transmission line route does not contain or traverse any jurisdictional waters or streams. Therefore, operation of the transmission line would have no impact on these resources.

5.7.3.2.3 Criteria 3: Would the proposed Project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the CDFG or USFWS?

Facility Site. The Project site does not contain any riparian vegetation communities. However, the biological field investigations conducted in spring 2009 identified two sensitive natural upland plant communities within the Project site, including wildflower field and Joshua tree recruitment area. Impacts to these communities are described below. Impact acreages for each vegetation type are summarized in Table 5.7-5.

Potential Impact 5.7-2: Loss and modification of wildflower field vegetation.

Construction. During the initial mowing prior to construction, the proposed Project would mechanically mow approximately 210 acres of existing wildflower field vegetation to a height of 3 to 6 inches. If this initial mowing was conducted during the growing season, many of the annual grasses and forbs that comprise this vegetation community would be cut, and could lose the opportunity to seed. Further, Project-related grading would eliminate 105 acres of this vegetation type (subset of mowed area), of which 79 acres would be permanently lost due to replacement by Project components. The other 131 acres mowed and 26 acres graded (subset) would be allowed to revegetate passively following completion of construction.

Operation. Long-term operation of the proposed generating facility would result in impacts to vegetation remaining within the Project site following the completion of Project construction. These impacts would primarily be associated with shading from solar panels and mowing of vegetation to a height of no more than 6 inches through most of the year, and would be identical to those affecting natural habitat areas in general, described in Section

5.7.3.2.1 of this Draft EIR. While operational activities would modify the wildflower fields on-site, no further habitat removal would occur beyond that associated with construction activities as described above. Long-term Project operations would modify a total of 131 acres of wildflower field habitat within the Project site. Considering this acreage along with the 79 acres that would be permanently eliminated during construction, the Project's combined impact on this sensitive vegetation community (construction and operational effects combined) would total 210 acres of habitat permanently lost/modified (89 percent of total wildflower field vegetation on-site). This removal and modification of sensitive habitat would be potentially significant, absent mitigation.

The Habitat Enhancement and Vegetation Management Plan (HEVMP) that would be prepared pursuant to Mitigation Measure 5.7-1, along with the off-site mitigation required by Mitigation Measure 5.7-2, would lessen this impact, as these measures would require the preservation and enhancement of wildflower field vegetation within the Project site and at an off-site mitigation location(s) at a ratio of 1.5:1. This ratio was chosen because it is sufficient to compensate for the Project-related loss of wildflower fields and prevent a net loss of this community, while also taking into consideration the relatively low temporal loss of wildflower field function that would occur while mitigation sites are maturing, due to the exclusively herbaceous nature of this vegetation type. Because the proposed Project would remove or modify a total of 210 acres of wildflower field vegetation, the mitigation requirement would equal 315 acres. The proposed site layout would accommodate approximately 90 acres of wildflower field mitigation, and an additional 225 acres would be mitigated off-site. These measures would reduce this impact to a less than significant level. This impact is described in greater detail in Section 5.2.1 of the Biota Report, presented in Appendix E.

Potential Impact 5.7-3: Impacts to the Joshua tree recruitment area.

Construction. The proposed Project would avoid the entire 7.3 acre Joshua tree recruitment area, and protect it with a buffer extending 50 feet from the nearest Joshua tree seedlings, resulting in a protected area 8.6 acres in extent. A perimeter fence and 30-foot-wide dirt access road would be constructed outside of the buffer along the south edge of the recruitment area. Impacts to this vegetation community would be limited to edge effects from fugitive dust generated by road construction and the installation of the solar panels and infiltration basins. These effects would be exacerbated by the windy conditions in the Antelope Valley, and impacts of windblown dust on the Joshua tree recruitment area would be potentially significant, absent mitigation. Fugitive dust would be partly mitigated by installing sheeting material along the perimeter fence to create a dust barrier, and using water as dust abatement within 100 feet of the seedlings. Chemical dust suppression would not be allowed within 100 feet of Joshua tree seedlings without the approval of the County (Mitigation Measure 5.7-3). In addition, a fugitive dust emission control plan would be

developed that would be approved by the Antelope Valley Air Quality Management District (AVAQMD) (Mitigation Measure 5.6-2, Develop and Implement Fugitive Dust Emission Control Plan). After incorporation of the proposed mitigation measures, the Project's impact on the Joshua tree recruitment area would be less than significant. This impact is described in greater detail in Section 5.2.2 of the Biota Report, presented in Appendix E.

Operation. Since the Joshua tree recruitment area would be avoided and protected by a buffer extending 50 feet from the nearest Joshua tree seedlings, and all Project infrastructure (including access roads, fire breaks, and perimeter fencing) is proposed outside this buffer, activities related to site operation are not expected to encroach upon or impact this vegetation type. There are no proposed operational tasks that would require personnel or vehicles to enter the Joshua tree recruitment area. Herbicide spraying to ensure no vegetation growth within the fire breaks would be performed on days of little to no wind to avoid inadvertent herbicide application to non-target areas. Approved dust control measures would reduce blowing dust from fire breaks and access roads. Solar panel arrays and associated stormwater infiltration basins would be installed approximately 80–90 feet away from the closest Joshua tree seedling, far enough away from the seedlings so as to not increase shading. The impacts from facility operations would be less than significant.

Off-site Transmission Line. Along the proposed transmission line route only one sensitive natural community is present: Joshua tree woodland (although this area is not within SEA #60). Within the ROW of 170th Street West along the proposed transmission line route, the Project would impact less than 0.2 acre of this sensitive community within temporary construction zones and proposed stringing sites, as shown in Table 5.7-5, but would allow these areas to recover to a natural state following construction. Permanent removal of Joshua tree woodland along the transmission line route would be minimal, and would be limited to 5 transmission pole locations requiring permanent removal of a maximum of 50 square feet or 0.001 acre of Joshua tree woodland at each location (less than 0.01 acre total). No Joshua trees would be removed during construction of the proposed transmission line. Due to the very small acreage of Joshua tree woodland to be disturbed, combined with the fact that no Joshua trees would be removed during construction, the proposed transmission line would not cause a substantial adverse effect on the Joshua tree woodland. The operation of the transmission line would not result in any further impacts to Joshua tree woodland within the transmission line route. Occasional routine line or pole maintenance in this portion of the transmission line could be performed within the existing road ROW using bucket-lift trucks and would not require disturbance or removal of existing vegetation. Impacts to this vegetation type along the proposed transmission line route would therefore be less than significant. This impact is described in greater detail in Section 5.2 of the Biota Report, presented in Appendix E.

5.7.3.2.4 Criteria 4: Would the proposed Project result in a substantial adverse effect on oaks or other unique native trees?

Construction.

Facility Site. Although trees are largely absent from the Project site, focused botanical investigations identified the presence of Joshua trees within the Project site. One mature Joshua tree and two seedlings are located immediately east of 170th Street West north of SR-138. In addition, the 7.3-acre Joshua tree recruitment area along the northern site boundary (refer to Figure 5.7-2) contains 50 juvenile Joshua trees. At the time of the biological surveys performed by URS in 2009, an 8.8-acre orchard containing approximately 525 mature pistachio trees was present south of the existing ranch house. These trees were not irrigated and did not produce nuts (i.e., abandoned). The landscaping immediately surrounding the ranch house south of SR-138 contained approximately 12 mature ornamental trees. All of these trees would be removed for Project development.

Potential Impact 5.7-4: Impacts to on-site mature Joshua trees and seedlings, and other trees.

The mature Joshua tree and two seedlings along 170th Street West would not be removed during Project construction, and the nearest Project facility to these resources would be an access road located approximately 78 feet to the east. However, these trees could be impacted by edge effects from construction of the proposed Project, such as contact with construction runoff, inadvertent trunk or root damage caused by construction vehicles, and vandalism. These potential impacts would be limited to the construction phase of the Project, and would no longer have the potential to occur once the Project entered the operational phase. Because of the separation (greater than 50 feet) between these trees and the construction impact zones, the potential of these impacts on the mature Joshua tree and two seedlings along 170th Street West would be minimal, and such impacts would be less than significant. However, road construction, the construction/installation phase of the solar panel arrays, and the associated excavation of the infiltration basins could produce windblown dust that could adversely affect plants and wildlife. The impact from excessive dust on the mature Joshua tree and seedlings along 170th Street West would be potentially significant, absent mitigation. Under Mitigation Measure 5.6-2, a fugitive dust emission control plan for construction work would be completed prior to construction and approved by the AVAQMD. Mitigation Measure 5.7-3 requires that chemical dust suppression would not be utilized within 100 feet of mapped Joshua tree woodland vegetation. In addition, a screening fence shall be installed to protect sensitive resources that may be present. These measures would reduce the impact of fugitive dust on the mature Joshua tree and seedlings along 170th Street West to less than significant.

The Joshua tree recruitment area is discussed above in Section 5.7.3.2.3, Potential Impact 5.7-3. The same conditions apply, and the impact, with mitigations, would be less than significant.

Impacts to orchard and ornamental trees. Installation of the proposed Project would entail removal of the existing ranch houses and associated landscaped areas, and clearing of the pistachio orchard (refer to Figure 5.7-2). Thus, all of the approximately 525 pistachio trees (non-producing) and 12 other ornamental trees would be permanently removed from the site. Because the ornamental and orchard trees to be removed are not "unique, native trees," this impact would be less than significant.

Off-site Transmission Line. The proposed transmission line route would pass along the edge of parcels containing mature Joshua trees, ornamental trees, and orchards. The only trees that would be removed during installation of the transmission line are less than 0.5 acre of trees in the orchard north of Gaskell Road, to permit construction of three transmission poles and creation of 20-foot-wide wide access paths to the poles. Because the ornamental and orchard trees to be removed are not "unique, native trees," this impact would be less than significant. Four poles would also be placed within areas mapped as Joshua tree woodland; however, these poles have been sited to ensure that no Joshua trees would be disturbed during construction. The distance from the edge of the proposed construction zones to the nearest Joshua tree varies, but would exceed 30 feet in all cases. Because of this separation, the potential for indirect impacts such as trunk damage or root compaction caused by inadvertent contact with construction equipment would be minimal. Therefore, potential construction-related impacts on Joshua trees adjacent to pole locations along the transmission line route would be less than significant. This impact is described in greater detail in Section 5.4.1.3 of the Biota Report, presented in Appendix E.

Operation.

Facility Site. Because the level of activity within the Project site would be low once the Project enters the operational phase, and because all Joshua trees on-site would be buffered by a minimum of 50 feet from the nearest Project-related facility, Project operations would not substantially affect this resource. Impacts of Project operation on unique, native trees would therefore be less than significant.

Off-site Transmission Line. The operation of the transmission line would not result in any effects on Joshua trees or other native trees along the route. As discussed previously, the level of activity associated with operation of the transmission line would be low, and all maintenance within the Los Angeles County segment of the route, which contains the mapped Joshua tree woodlands, could be accomplished from the public road ROW without

disturbing vegetation. Impacts on unique, native trees from operation of the proposed transmission line would, therefore, be less than significant.

5.7.3.2.5 Criteria 5: Would the proposed Project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFG or USFWS?

Biological surveys results indicate that habitats within the Project site are utilized by 15 special-status species, including 14 bird species and one reptile species (see Table 5.7-3). Among the special-status birds detected onsite, six species utilize the site either only as a stopover habitat during migration or outside the season during which the species are assigned special status. Impacts to special-status species within the Project site are discussed below. For each potentially affected species, impacts associated with immediate loss of individuals (i.e., injury or mortality) are addressed separately from impacts stemming from habitat loss. The discussions of habitat loss address both habitat eliminated during construction and habitat permanently modified by the persistent effects of the Project; these losses have been combined in the analysis due to the intertwined nature of these impacts.

Potential Impact 5.7-5: Injury or mortality of Blainville's horned lizard.

Construction.

Facility Site. Biological field investigations within the Project site identified one individual Blainville's horned lizard, which was observed in the sandy channel of Drainage C, in the southeastern corner of the Project site. Current range maps for this species (California Herps 2009) suggest that the southern portion of the Project site is near a northern inland boundary of the Blainville's horned lizard's range, explaining the lack of observations within the majority of the site. This lizard is not expected to be common on the site, especially north of SR-138, due to its current known range, the historical disking which occurred on-site, and SR-138, which presents a movement barrier to horned lizards. Project-related injury or mortality of Blainville's horned lizard could potentially occur due to mechanical crushing or entombment during grading activities, solar panel installation, excavation of infiltration basins, vegetation clearing/fuel modification activities, and preparation of construction laydown areas; collisions with vehicles on access roads; exposure to excessive fugitive dust; and general disturbance due to increased human activity. Blainville's horned lizards could be injured or killed during ground-disturbing Project activities in developed areas throughout the Project site, as the entire site contains habitat that could potentially support this species. Because this ground-dwelling species has low mobility, and would be unable to escape from the threats described above, the Project's impacts relative to injury or mortality of Blainville's horned lizard during construction would

be potentially significant, absent mitigation. Mitigation Measures 5.7-5 (Biological Monitor), 5.7-6 (Worker Environmental Education Program), and 5.7-7 (Blainville's Horned Lizard Capture and Relocation) would substantially reduce this impact. These measures would increase awareness regarding sensitive biological resources among site construction workers, and would require trapping for Blainville's horned lizard prior to construction to lessen mortality. However, given the cryptic nature of this species, that it is often underground and therefore not detectable, and the large size of the Project site, it is likely that some individuals would avoid detection and capture during the trapping effort, and these individuals could be crushed during ground clearing activities. Due to the relatively low numbers of Blainville's horned lizard believed to occur on-site, and the implementation of the proposed mitigation measures, the Project's impacts related to injury or mortality of Blainville's horned lizard would be less than significant. This impact is described in greater detail in Section 5.5.2.1.1 of the Biota Report, presented in Appendix E.

Off-site Transmission Line. The transmission line route contains potentially suitable habitat for the Blainville's horned lizard, although this species is not known to occur as far north as the proposed transmission route. Potential impacts to this species would be due primarily to crushing by construction vehicles and equipment within pole installation sites and stringing areas. However, current range maps do not show this species occurring on the floor of Antelope Valley. It is therefore very unlikely that the species would occur within the transmission line route, which runs north across the valley floor from the north end of the Project site. Also, only a fraction of the total route area (approximately 5 acres of ground disturbance and less than 1 acre of permanent habitat loss or modification) would be impacted by construction and pole installation activities. Given the small chance of occurrence and the small impact area involved, the potential impacts to the Blainville's horned lizard within the transmission line route would be less than significant.

Summary of Construction Impacts. Because construction-related injury or mortality of Blainville's horned lizards would be significant for the Project site and less than significant for the proposed transmission line, this impact would be potentially significant for the Project as a whole. This impact would be reduced to a less than significant level through incorporation of mitigation measures, as described above.

Operation.

Facility Site. The primary operational impact to Blainville's horned lizards would be associated with the proposed vegetation management program. Mowing with tractor mowers and weed-eater crews would potentially kill, injure, and harass horned lizards. Permanent losses of on-site vegetation, such as those occurring within the proposed fire breaks and structure footprints, would reduce forage available for horned lizard prey species (ants and other insects). Shading from solar panel arrays would decrease surface temperature and solar

radiation, limiting the ability of horned lizards (and other reptiles) to elevate body temperature in the morning to become active. Solar panels would create perching opportunities for ravens, which are known to prey on Blainville's horned lizards. However, the existing on-site shrubs, trees, and powerlines along SR-138 currently provide ample raven perching opportunities, such that in comparison, the proposed solar panels and equipment would not cause significant increases in additional raven perching locations. Vehicle traffic on access roads could result in the crushing of horned lizards, especially as they bask on warm, open roads during the early evening. These impacts to Blainville's horned lizard would be potentially significant, absent mitigation.

Mitigation Measure 5.7-7, (Blainville's Horned Lizard Capture and Relocation) would reduce the number of horned lizards remaining on the site prior to construction and ground disturbance. Considering the amount of disturbance and activity on the site during the construction phase, it is very unlikely that Blainville's horned lizards would attempt to recolonize the site until after construction activities ceased. The post-construction population is expected to be very low, and concentrated toward the south end of the Project site, closest to the known limits of the species' range. Therefore, the chances of encountering a horned lizard during operational activities would also be very low. Given these considerations, the potential impacts to Blainville's horned lizard individuals caused by facility operations would be less than significant.

Off-site Transmission Line. The operation of the transmission line would not result in any further impacts to Blainville's horned lizard individuals within the transmission line route. In the Los Angeles County portion of the route, occasional routine line or pole maintenance could be performed within the existing road ROW using bucket-lift trucks and would not require disturbance or removal of existing vegetation. In Kern County, these activities may be conducted outside the road ROW, but poles would be accessed via the 20-foot-wide wide access paths established during construction. The potential for this species to occur within the transmission line route is very low. The potential mortality and injury impacts to Blainville's horned lizards in the transmission line route during operations, therefore, would be less than significant.

Potential Impact 5.7-6: Loss of habitat for Blainville's horned lizard.

Construction.

Facility Site. Currently, the Project site contains 2,044 acres of natural habitats, all of which are potentially suitable for use by the Blainville's horned lizard, but which are near or beyond the northern limits of the species' known range in the region. As stated previously, the proposed Project would permanently remove 731 acres of natural habitats, and would modify 1,206 acres through either ground clearing and grading activities (including

compaction of soil) or shading and fuel modification within and adjacent to the solar panel arrays. Included as part of the impacts considered to this species' habitat is the potential introduction of non-native (Argentine) ant species as a result of developed areas, and particularly in irrigated landscapes. The presence of temporary irrigated landscapes (for instance, the temporary irrigation of vegetation screening along either side of SR-138 commencing during construction until vegetative establishment), solar panel foundations, access roads, and other manmade features on the ground would attract and encourage Argentine ants. These ants are a documented threat to the Blainville's horned lizard, as they outcompete and displace the native harvester ants that are the lizard's preferred food source. However, any on-site landscaping would be implemented using a plant palette comprised of locally indigenous, non-invasive species that are adapted to the conditions found on the Project site, and that do not require high irrigation rates, in accordance with the Drought Tolerant Landscaping Ordinance (Title 22 Chapter 22.52 Part 21). Irrigation of vegetated areas shall be limited to short-term, temporary drip irrigation, and would be minimized to the extent possible, and would reduce the effects of Argentine ants. Nonetheless, the substantial removal and modification of on-site habitats would decrease the site's capacity to support the Blainville's horned lizard. Given these factors, impacts to Blainville's horned lizard from habitat loss and modification on-site would be potentially significant, absent mitigation.

The preserved and enhanced areas required by Mitigation Measure 5.7-1 would ensure that a minimum of 101 acres within the Project site (including areas surrounding Drainage A, Drainage C, and the Joshua tree recruitment area, see Figure 5.7-7) are preserved, and would be managed to maintain suitability for this species. However, it should be noted that two of the preserved areas would be located north of SR-138, and may be outside the species' current distribution. The exact distribution of this species in the Project vicinity is not known; this species was not originally expected to occur on-site, but one individual was detected during biological field investigations. In addition, Mitigation Measure 5.7-2 would protect an additional 450 acres of suitable habitat for this species within the Antelope Valley. The preservation and enhancement of substantial Blainville's horned lizard habitat, combined with the low chance that this species occurs in substantial numbers within the Project site, would reduce the Project's impacts on this species to a less than significant level. This impact is described in greater detail in Section 5.5.2.1.1 of the Biota Report, presented in Appendix E.

Off-site Transmission Line. The public road ROW along 170th Street West contains approximately 13.4 acres of potentially suitable habitat for the Blainville's horned lizard. However, current range maps do not show this species occurring on the floor of Antelope Valley. It is therefore very unlikely that they would occur within the transmission line route. Also, only a fraction of the total route area (approximately 5 acres of temporary ground disturbance and less than 1 acre of permanent habitat loss) would be impacted by construction and pole installation activities. Areas of temporary disturbance would recover to

natural vegetation after construction. The presence of transmission poles, generally spaced approximately 700 feet apart, with overhead transmission lines would not alter the existing habitat condition. Given the small impact area involved, and the lack of habitat alterations, the potential impacts to Blainville's horned lizard through loss of habitat within the transmission line route would be less than significant.

Operation.

Facility Site. As previously described, development of the site would result in the substantial alteration of on-site habitats through shading from solar PV panels, and vegetation mowing practices. These activities would affect 1,206 acres of the site post-construction, in addition to the 731 acres that would be permanently replaced by the physical footprint of Project components. The density of the proposed PV panels, which would be arrayed with the intention of capturing the maximum possible amount of sunlight, would permanently and substantially decrease the amount of solar radiation reaching the soil surface in these areas. This phenomenon could result in adverse effects on Blainville's horned lizard and other reptiles, as these species rely on direct sunlight to elevate body temperature in the morning. The foundations of the proposed panels would create areas of elevated soil moisture, which could result in an invasion of the site by Argentine ants and the displacement of native harvester ants, the preferred prey of Blainville's horned lizard. The proposed vegetation mowing and trimming could also reduce prey abundance for this species. Impacts to Blainville's horned lizards through habitat loss would be potentially significant, absent mitigation. Mitigation Measures 5.7-1 and 5.7-2 would reduce the Project's impact on this species to a less-than-significant level.

Off-site Transmission Line. The operation of the transmission line would not result in any further impacts to Blainville's horned lizard habitat within the transmission line route beyond those associated with Project construction. The potential impacts to Blainville's horned lizard habitat caused by transmission line operations would be less than significant. The preserved and enhanced areas required by Mitigation Measure 5.7-1 would ensure that a minimum of 101 acres within the Project site are preserved, and would be managed to maintain suitability for this species. In addition, Mitigation Measure 5.7-2 would protect an additional 450 acres of suitable habitat for this species within the Antelope Valley. The preservation and enhancement of substantial Blainville's horned lizard habitat would reduce the Project's impacts on this species to a less than significant level. This impact is described in greater detail in Section 5.5.2.1.1 of the Biota Report, presented in Appendix E.

Summary of Blainville's Horned Lizard Habitat Loss. In total, construction of the proposed Project, including the transmission line route, would remove or permanently modify approximately 1,937 acres of suitable Blainville's horned lizard habitat. This impact would

be significant absent mitigation, but would be reduced to a less than significant level through incorporation of mitigation measures, as described above.

Potential Impact 5.7-7: Injury or mortality of burrowing owl.

Construction.

Facility Site. This species is present on the Project site year-round and is known to nest in burrows along the vertical banks of Drainage A (on-site) and Drainage C (approximately 150 feet south of the site; see Section 4.7 of Appendix E, Biota Report). Also, protocol burrowing owl surveys (CBOC 1993) showed owls using these burrows foraged in very limited areas that do not overlap areas on-site that are proposed for development. However, these surveys likely underrepresented the full extent of burrowing owl foraging on-site. Within the Project site, the one known active burrowing owl burrow during the 2009 nesting season was in Drainage A, which is not proposed for development, including a 100-foot buffer on either side. However, suitable nesting habitat is present in several other locations around the Project site (see Section 4.7 of Appendix E, Biota Report). The pair of owls nesting in Drainage C raised 6 young in 2009, and it is very likely that the adults and fledglings from this location forage on-site due to the close proximity of the burrow to the site boundary. Since the species nests and roosts underground, it is possible that adult and juvenile/nestling owls may be killed or injured, or eggs may be destroyed, by being crushed during construction-related ground disturbances. If construction occurs when nestlings are present, adult owls might have the ability to escape, but nestlings likely would not. In addition, disturbances from construction could potentially cause burrowing owls to abandon their nest burrows, leaving nestlings unattended and exposed to injury and mortality. In addition to injury and mortality caused by physical contact with construction equipment, Project construction could result in harm to owls through substantial windblown dust in bare areas where vegetation has been cleared. Dust could adversely affect the plants and wildlife that inhabit the area. Therefore, impacts from construction activities resulting in injury and mortality to burrowing owls on-site would be significant, absent mitigation.

Mitigation Measures 5.7-5 (Biological Monitor During Construction), 5.7-6 (Worker Environmental Awareness Program), and 5.7-8 (Pre-construction Nesting Bird Surveys), and 5.7-9 (Pre-construction Wintering Burrowing Owl Surveys) would increase awareness regarding sensitive biological resources among site construction workers, and would require surveys and monitoring for sensitive nesting bird species during appropriate seasons. The proposed measures would substantially reduce the risk of injury or mortality to burrowing owls, preventing destruction of burrows and prohibiting ground disturbance within 300 feet of active burrows, as recommended by the CDFG (1995) and California Burrowing Owl Consortium (1993) guidelines. Under Mitigation Measure 5.7-9, passive relocation of owls during the non-breeding season would be implemented in areas where ground disturbances

are unavoidable. After incorporation of the proposed mitigation measures, the Project's impacts relating to injury or mortality of burrowing owls during construction would be less than significant.

Implementation of Mitigation Measure 5.6-2 (Develop and Implement Fugitive Dust Emission Control Plan) would be expected to reduce potentially significant dust-related impacts to less than significant.

Off-site Transmission Line. Construction within the transmission line route has potential to impact this species through destruction of nests and eggs, injury and mortality of nestlings, or by causing abandonment of nests, should this species occur in this area. However, no burrowing owls or burrows suitable for this species were found in the transmission line route during protocol surveys in 2009, and no evidence of burrowing owl occupation was noted during general biological surveys of the Kern County portions of the transmission line route in January 2010. Due to this and the small area to be impacted by construction activities there (approximately 5 acres of temporary ground disturbance and less than 1 acre of permanent habitat loss or modification), the impact on burrowing owls in the transmission line route through injury and mortality during construction would be less than significant. Mitigation Measures 5.7-5 (Biological Monitor During Construction), 5.7-6 (Worker Environmental Awareness Program), 5.7-8 (Pre-construction Nesting Bird Surveys), and 5.7-9 (Pre-construction Wintering Burrowing Owl Surveys) would further reduce this potential impact.

Operation.

Facility Site. Under existing conditions, all 2,044 acres of natural habitats within the Project site are at least somewhat suitable for use by the burrowing owl. As discussed further in the discussion of Potential Impact 5.7-8: Loss of suitable habitat for burrowing owls, below, the proposed removal and modification of on-site habitats would render most of the site unsuitable for burrowing owls, particularly within the solar arrays and around Project facilities (developed areas are shown on Figure 4.3-1A and acreages are displayed in Table 5.7-5). Therefore, permanent features of the Project would pose relatively little threat of mortality and injury to burrowing owls, which would be largely absent on-site, except in the preserved areas around Drainages A and C and possibly elsewhere around the site perimeter. The two burrowing owls observed using the Project site were detected within these avoidance areas, and could potentially continue to use the same areas during Project operation, although it is uncertain whether the general changes in character of the surrounding areas would induce these individuals to leave the site. As discussed previously, the proposed solar panels and equipment would provide perching opportunities for common ravens, which are known to prey on juvenile and even adult burrowing owls. However, in comparison to the existing on-site perching opportunities provided by the shrubs and trees on the Project site and powerlines along SR-138, the presence of solar panels, equipment, and

structures would not result in significant increases to raven perching locations. Additionally, the incorporation of a "slack wire" along the top of the perimeter fence would assist to discourage perching by common ravens (see Section 2.4.2.3 of Appendix E, Biota Report), thus lessening long-term mortality and injury impacts of the proposed Project. Therefore, mortality and injury impacts to burrowing owls from operations of the Project would be less than significant.

Off-site Transmission Line. Along the proposed transmission line route, the permanent alterations to habitat would be the presence of steel transmission line poles. Transmission towers with lattice provide many nesting opportunities for ravens, a potential predator of the burrowing owl, and many perching opportunities (McIntyre et al. 2007). Many wooden transmission poles include multiple cross-arms on which a raven can build a nest and perch. Since the design of the off-site transmission line poles associated with the Project (see Figure 4.4-6) lack these features, the structures would not constitute a substantial alteration of burrowing owl habitat. The proposed transmission line route currently features existing, smaller scale electrical distribution infrastructure utilizing wooden poles, as well as larger transmission structures built with transmission towers, as described in Section 5.7.2.2. These existing structures currently provide ample perching opportunities for common ravens. Further, since burrowing owls have not been shown to use areas along the proposed transmission line route, the impact to burrowing owls related to injury or mortality would be less than significant.

Potential Impact 5.7-8: Loss of suitable habitat for burrowing owl.

Construction.

Facility Site. As described previously, the proposed Project would result in construction disturbance (initial mowing, as well as grading in some areas, see Section 5.7.3.2.1 of this Draft EIR) of 1,937 acres of natural habitat on the Project site, including approximately 731 acres where habitat would be permanently removed, and 1,206 acres that would be impacted temporarily and would be allowed to revegetate passively. However, the temporarily impacted acreage would sustain long-term impacts during the Project's operational phase, as described below. This impact would be potentially significant, absent mitigation.

Mitigation Measures 5.7-1 (Habitat Enhancement and Vegetation Management Plan), 5.7-2 (Off-site Mitigation for Loss of Habitat), and 5.7-10 (Burrowing Owl Habitat Management Plan) would result in mitigation for the loss of natural habitats on-site at a rate of 0.29:1 (29 percent), including the preservation of blocks of habitat around Drainage A (the location of the only active on-site burrow in the spring-summer 2009) and Drainage C (where burrowing owls nested just off-site in 2009), and an additional 450 acres at an off-site location(s) within the Antelope Valley. Protocol surveys (CBOC Phase III, see Biota Report in Appendix E for

further information) intended to identify the specific areas used for foraging by these owls were inconclusive. The acreage of habitat preserved through the proposed mitigation measures would substantially exceed the 19.5 acres of foraging habitat per occupied burrow or owl pair (for a total of 39 acres) recommended in CDFG (1995) and CBOC (1993) guidelines for off-site burrowing owl mitigation. As described in Mitigation Measure 5.7-1, the mitigation area surrounding Drainage A would total 47 acres, and the area surrounding Drainage C would total 45 acres. Together, on-site and off-site habitat preservation and enhancement would reduce impacts to burrowing owls through habitat loss on the Project site to less than significant.

Off-site Transmission Line. No burrowing owls or burrows suitable for this species were found in the transmission line route during protocol surveys in 2009, and no evidence of burrowing owl occupation was noted during general biological surveys of the Kern County portions of the transmission line route in January 2010. However, suitable foraging habitat is present, and this species has potential to occur here. Construction within the transmission line route, therefore, has potential to impact the foraging habitat for this species through construction of the transmission line poles. Due to the relatively small loss of suitable foraging habitat and the overall low probability for burrowing owls to occur along the transmission line, the potential operational impacts of the proposed transmission line route related to loss of habitat for burrowing owls would be less than significant.

Operation.

Facility Site. The presence of solar panels and vegetation management practices within the solar arrays would result in modification of 1,206 acres of natural habitats in addition to the 731 acres permanently removed during construction, bringing the total acreage of habitat removed or altered to 1,937 acres (the solar arrays would occupy 1,659 acres of current natural habitats, but much of this area overlaps with areas proposed for ground disturbances). Within the solar arrays, to reduce the risk of fire within the Project site, vegetation management practices would include mowing to maintain a height of 6 inches or less during the majority of the year, except between February 1 and mid-April, when grasses and wildflowers would be allowed to grow to height of no more than 18 inches to ensure that a seed supply is maintained to perpetuate this vegetation. Beginning in approximately mid-April, vegetation mowing would commence in order to meet the Los Angeles County Fire Department (LACFD) requirement to have vegetation maintained at a maximum height of 6 inches or less by May 1 of each year (and through the following January). It is expected that vegetation would typically be mowed to a height of 3 to 6 inches to facilitate maintenance of the 6-inch maximum height requirement between May and the end of January. Mowing and limited use of herbicides as needed for fire protection and for safe equipment operations and maintenance would occur year round in applicable locations. The density of the proposed PV panels, which are arrayed with the intention of capturing the maximum possible amount of

sunlight, would permanently and substantially alter the habitat by making it much less open. As burrowing owls generally prefer open habitats, these alterations would likely make the areas where the PV panels are located unsuitable for continued use by this species.

Some suitable burrowing owl habitat would remain on-site after construction of the Project. A 45-acre portion of the Project site near West Avenue E containing a portion of Drainage C and a 47-acre area within and surrounding Drainage A would remain in their current states. Both locations include areas that hosted active burrowing owl burrows in the spring 2009 and may provide sufficient suitable habitat for owls to persist. The acreage of foraging habitat available would substantially exceed the 6.5 acres per occupied burrow recommended in the CBOC (1993) mitigation guidelines, but the configuration of this habitat, particularly around Drainage A, would be more linear than recommended by the guidelines, which suggest a circular foraging area surrounding the burrow.

Given the extensive loss of suitable habitat on the Project site, the impacts to burrowing owls from habitat loss and modification would be potentially significant, absent mitigation.

The avoidance areas at the southernmost portion of the Project site near Drainage C, the 100-foot setback from Drainage A, enhancement and revegetation of these areas as required by Mitigation Measure 5.7-1, additional measures to enhance these habitat areas under the Burrowing Owl Habitat Management Plan in Mitigation Measure 5.7-10, and off-site mitigation as required in Mitigation Measure 5.7-2 would provide mitigation for the loss and alteration of natural habitats at a ratio of 0.29:1 (29 percent) and ensure that a minimum of 39 acres (19.5 acres for each of the two occupied burrows affected by the Project)of suitable foraging habitat (the recommended acreage when mitigating in off-site, unoccupied habitat, per CBOC 1993) is provided for each active burrow on-site. In reality, because the off-site mitigation land required by Mitigation Measure 5.7-2 would be located within the Antelope Valley, which is generally characterized by the flat, open habitats that this species prefers, it is likely that the preserved area would contain substantially more suitable habitat for burrowing owls than the minimum 19.5 acres per impacted burrow required by the mitigation measure. Therefore, operations of the Project site, in conjunction with implementation of the proposed mitigation measures, would reduce this impact to less than significant.

Off-site Transmission Line. Along the proposed transmission line route, the only permanent alteration to habitat would be the presence of steel transmission line poles, power lines, and 20-foot-wide access roads in the Kern County portion of the route. The proposed transmission line poles would not constitute a substantial alteration of burrowing owl habitat (see Potential Impact 5.7-7, above). Furthermore, as burrowing owls have not been shown to use the area proposed for the transmission line route, the impact to burrowing owls from permanent habitat loss along the proposed transmission line route would be less than significant.

Potential Impact 5.7-9: Injury or mortality of special-status birds.

Biological field investigations within the Project site have indicated that 14 special-status bird species (not counting the burrowing owl, addressed in Potential Impacts 5.7-7 and 5.7-8 above) utilize the on-site habitat to fulfill a portion of their ecological requirements. However, three of these species (Brewer's sparrow, northern harrier, and Vaux's swift) were judged to use the site minimally, either as a stop-over habitat during migration or during a season other than that for which the species is assigned special status. The remaining nine species (greater roadrunner, lark sparrow, loggerhead shrike, long-eared owl, merlin, mountain bluebird, prairie falcon, tricolored blackbird, vesper sparrow, and western meadowlark) use the site either as nesting habitat, or for foraging/wintering purposes during the nesting or special-status season (in the case of the merlin, mountain bluebird, and vesper sparrow, the species use the site for wintering rather than nesting, but are designated special-status when wintering). Project-related impacts to each of these species are discussed below.

Ferruginous Hawk, Long-eared Owl, Prairie Falcon, and Merlin. These four birds of prey likely use habitats within the Project site for foraging, although only the long-eared owl has the potential to nest on-site in the orchard and in ornamental trees surrounding the ranch house. Ferruginous hawks and merlins have the potential to roost in trees on-site.

Construction.

Facility Site. Within the Project site, a total of 1,937 acres of existing natural habitat would be disturbed during construction (including initial vegetation mowing and grading in some areas). In addition, 11 acres of ornamental vegetation and orchard habitat (non-natural habitat areas that may nonetheless be used by these species) would be removed during construction. As the ferruginous hawk, long-eared owl, prairie falcon, and merlin are all highly mobile species, adult individuals would be able to fly away and avoid injury or mortality potentially caused by collisions with construction equipment working in the open habitats where these species forage. Should any of these species be roosting in trees during clearing of ornamental or orchard habitat, the individuals would likely be flushed from the area due to the presence of construction equipment before the clearing occurred. In addition, as efforts to find these species roosting or nesting in ornamental and orchard habitat on-site failed to result in any observations of these species, it is relatively unlikely that any would be present in these habitats during clearing. Also, potential toxins in windblown dust originating in construction areas is not expected to be a factor for these species. All four species are highly mobile and forage over wide areas, thus are likely to avoid construction-related dangers. Therefore, the Project's impacts on the ferruginous hawk, long-eared owl, prairie falcon and merlin due to construction-related injury or mortality would be less than significant. This impact is described in greater detail in Section 5.5.2.2.2 of the Biota Report, presented in Appendix E.

Off-site Transmission Line. Temporary construction impacts to natural habitats associated with construction of steel transmission line poles and power lines would total approximately 5 acres. In addition, the potential installation of up to three transmission poles within an orchard north of Gaskell Road would result in the removal of less than approximately 0.5 acre of trees where birds of prey could potentially roost or nest. Adult birds of prey are highly mobile and are likely to avoid construction-related dangers. Should long-eared owl nest in the orchard, some possibility exists that nests, eggs, or nestlings could be destroyed. However, these trees are not typical long-eared nesting habitat, and no large nests suitable for this species were found here during surveys in February 2009, or January and March 2010. Given this, and due to the small area affected by ground disturbances and tree removal in the transmission line route, these impacts on these species due to construction-related injury or mortality would be less than significant.

Operation.

Facility Site. As discussed in Potential Impact 5.7-10: Loss of suitable habitat for special-status birds, the proposed removal and modification of on-site habitats would render most of the site unsuitable, or only marginally suitable, for use by the ferruginous hawk, long-eared owl, prairie falcon, and merlin (See Figure 5.7-7 and Table 5.7-5). Therefore, it is very unlikely that these species would occur on the Project site during the operational phase and thus impacts on these species due to operation-related injury or mortality would be less than significant.

Off-site Transmission Line. Along the proposed transmission line route, the only proposed permanent alteration to habitat would be the presence of steel transmission line poles, power lines, and short, 20-foot-wide access paths. Therefore, the proposed off-site transmission line impacts on these species due to operation-related injury or mortality along the transmission line route would be less than significant.

Greater Roadrunner. This species may nest in Joshua tree woodlands in the Project vicinity, and has been observed foraging within the Project site.

Construction.

Facility Site. Within the Project site, a total of 1,937 acres of existing natural habitat would be disturbed during construction (including initial vegetation mowing and grading in some areas). Greater roadrunners are relatively mobile, and adults would be able to fly or run to avoid injury or mortality from collisions with construction equipment. Construction activities could displace roadrunners from foraging areas within their territories. Those displaced could be exposed to competition for territory and resources, leading to mortality or injury. This risk is relatively low on the Project site, given that most of the site is marginally suitable habitat for roadrunners, and that only one of this fairly conspicuous and readily

identifiable species was observed in 2008–2009, despite extensive biological surveys. Construction activities on-site should present little risk to eggs and nestlings, since no nests are expected due to lack of suitable nesting habitat. Therefore, on-site impacts to greater roadrunners due to Project-related injury and mortality during construction would be less than significant. This impact is described in greater detail in Section 5.5.2.2.3 of the Biota Report, presented in Appendix E.

Off-site Transmission Line. Construction activities would be unlikely to affect this species in the transmission line route. The only potential nesting habitat for this species in the transmission line is in Joshua tree woodland. However, the associated shrubs of the Joshua tree woodland in the area to be effected are smaller than typical of nesting habitat for this species, which prefers areas with shrubs between 6 and 10 feet (Hughes 1996). Some larger Joshua trees with multiple branches may provide nesting habitat, but no Joshua trees would be within 67 feet of a construction zone. Therefore, the construction impacts on greater roadrunners through injury and mortality along the proposed transmission line route would be less than significant.

Operation.

Facility Site. As discussed in Potential Impact 5.7-10: Loss of suitable habitat for special-status birds, the proposed removal and modification of on-site habitats would render most of the site unsuitable or only marginally suitable for use by the greater roadrunner (see Figure 5.7-7 and Table 5.7-5). Therefore, it is very unlikely that this species would occur on the Project site during the operational phase, and thus impacts on this species due to operation-related injury or mortality would be less than significant.

Off-site Transmission Line. Along the proposed transmission line route, the only proposed permanent alteration to habitat would be the presence of steel transmission line poles, power lines, and 20-foot-wide paths allowing access to the poles. Therefore, the proposed off-site transmission line impacts on this species due to operation-related injury or mortality would be less than significant.

Lark Sparrow.

Construction.

Facility Site. Within the Project site, a total of 1,937 acres of existing natural habitat would be disturbed during construction (including initial vegetation mowing and grading in some areas). As this species is highly mobile, adults should be able to fly away to avoid injury or mortality from collisions with construction equipment. However, nestlings of this species, which frequently nests on the ground, could be subject to injury and mortality, and eggs could be destroyed, during vegetation clearing or other construction activities. Also,

construction of the Project could result in harm to lark sparrows through substantial windblown dust in bare areas where vegetation has been cleared. Due to risk of injury and mortality to nestlings, potential destruction of eggs during Project construction, and the potential effects of fugitive dust, the Project's impacts related to injury or mortality of lark sparrows within the Project site during construction would be potentially significant, absent mitigation.

This impact would be reduced through Mitigation Measures 5.7-5 (Biological Monitor), 5.7-6 (Worker Environmental Awareness Program), and 5.7-8 (Pre-Construction Nesting Bird Surveys). These measures would increase awareness regarding sensitive biological resources among site construction workers, and would require surveys and monitoring for sensitive species during appropriate seasons, including avoidance and minimization requirements in the event that species are detected. In addition, Mitigation Measure 5.6-2 (Develop and Implement Fugitive Dust Emission Control Plan) would reduce the impact of windblown dust. The proposed measures would substantially reduce the risk of injury or mortality to lark sparrows on-site, and would reduce this impact to a less than significant level. This impact is described in greater detail in Section 5.5.2.2.4 of the Biota Report, presented in Appendix E.

Off-site Transmission Line. Temporary construction impacts to natural habitats associated with construction of these facilities would total approximately 0.1 acre at each pole location associated with the planned 50- by 100-foot work areas at each pole site. Just as with lark sparrows occurring on-site, adult lark sparrows along the transmission line route would be able to fly away to avoid collisions with construction equipment. Also the possibility that eggs or nestlings would be destroyed would be low, due to the small acreage to be disturbed. Therefore, the impact of construction of the proposed transmission line on the lark sparrow through injury and mortality would be less than significant. This impact would be further reduced by implementation of Mitigation Measures 5.7-5 (Biological Monitor), 5.7-6 (Worker Environmental Awareness Program), and 5.7-8 (Pre-Construction Nesting Bird Surveys).

Operation.

Facility Site. The PV panels and other permanent structures associated with the site (such as the O&M building) would provide perching opportunities for common ravens, which may prey on small songbirds, including their young and eggs. However, the existing vegetation (i.e., shrubs and trees) on the site currently provides ample perching opportunities for ravens, such that the installation and use of solar panels and associated equipment would not result in significant increases in raven perching locations. Additionally, the design of the perimeter fence incorporates a "slack wire" along the top of the fence to discourage bird perching, which should minimize increases in the threat to lark sparrows from ravens. Mowing associated with vegetation management practices would potentially expose lark sparrow

nests, nestling, or eggs to mortality and injury. Due to risk of injury and mortality to nestlings and potential destruction of eggs from mowing, the long-term impacts of the proposed Project on lark sparrows would be significant, absent mitigation. Mitigation Measure 5.7-4 (Annual Nesting Bird Surveys Prior to Mowing) would reduce this impact by ensuring that no nests of this species are destroyed. As relatively few lark sparrows are expected to nest on-site after construction, the impacts of raven perching in comparison to existing site conditions, in addition to measures to discourage raven perching around the perimeter of the site, would be minimal. Therefore the Mitigation Measure 5.7-4 would reduce this impact to less than significant. This impact is described in greater detail in Section 5.5.2.2.4 of the Biota Report, presented in Appendix E.

Off-site Transmission Line. Along the proposed transmission line route, the only proposed permanent alteration to habitat would be the presence of steel transmission line poles, power lines, and 20-foot-wide paths allowing access to the poles. The design of the transmission poles would not encourage perching or nesting by common ravens, as the horizontal arms attaching the conductors to the poles would be higher than preferred by this species. Also, under existing conditions, the proposed transmission line route area contains smaller-scale power lines which feature shorter, wooden poles, which are used for nesting and perching by ravens. Operation of the proposed transmission line would not substantially affect raven perching opportunities in the area, and thus would not be expected to increase predation of lark sparrows and their young by ravens. Therefore, the proposed off-site transmission line impacts on the lark sparrow due to operation-related injury or mortality would be less than significant.

Loggerhead Shrike.

Construction.

Facility Site. Within the Project site, a total of 1,937 acres of existing natural habitat would be disturbed during construction (including initial vegetation mowing and grading in some areas). Construction activities within the Project site would include clearing of the pistachio orchard south of SR-138, where shrikes are presumed to nest based on the results of biological field investigations. While adult shrikes and fledged juveniles would likely be able to avoid contact with construction equipment in this area, any shrike nestlings in the orchard would be exposed to injury or mortality, and any eggs would be destroyed, should clearing take place in the nesting season. Construction activities on-site in areas other than the existing orchard would not affect shrike nesting habitat, and individuals foraging in these areas would be mobile enough to avoid collisions with equipment. In addition to possible harm to shrike nestlings and eggs from the clearing of the orchard, shrikes could suffer harm from fugitive dust. The area along 160th Street West where shrikes nested in 2009 is downwind of the site under prevailing wind conditions. Because of the potential of the

clearing of the on-site orchard to expose shrike nestlings to injury or mortality and cause destruction of shrike eggs, and because construction activities on-site could result in harm to shrikes through substantial windblown dust in bare areas where vegetation has been cleared, the Project's impacts on shrikes due to injury or mortality from temporary construction activities on-site would be significant, absent mitigation.

This impact would be reduced through Mitigation Measures 5.7-5 (Biological Monitor), 5.7-6 (Worker Environmental Awareness Program), and 5.7-8 (Pre-Construction Nesting Bird Surveys). These measures would increase awareness regarding sensitive biological resources among site construction workers, and would require surveys and monitoring for sensitive species during appropriate seasons, including avoidance and minimization procedures in the event that species are detected. In addition, Mitigation Measure 5.6-2 (Develop and Implement Fugitive Dust Emission Control Plan) would reduce the impact of windblown dust. The proposed measures would substantially lessen the risk of injury or mortality to loggerhead shrikes on-site, reducing it to a less than significant level. This impact is described in greater detail in Section 5.5.2.2.6 of the Biota Report, presented in Appendix E.

Off-site Transmission Line. Temporary construction impacts to natural habitats associated with construction of these facilities would total approximately 5 acres. In general, little to no grading is expected to be required in these areas, and the removal of mature trees, such as those preferred for nesting by shrikes, would generally be avoided. Therefore, given the shrike's ability to avoid physical harm from contact with construction equipment, adult and fledged juvenile shrikes should not suffer injury or mortality because of construction activities in the proposed transmission line route. Therefore, the Project's impacts on loggerhead shrikes along the transmission line route would be less than significant. Mitigation Measures 5.7-5 (Biological Monitor), 5.7-6 (Worker Environmental Awareness Program), and 5.7-8 (Pre-Construction Nesting Bird Surveys) would further reduce any potential impacts to shrikes along the transmission line route.

Operation.

Facility Site. As discussed in Potential Impact 5.7-10: Loss of suitable habitat for special-status birds, the proposed removal and modification of on-site habitats would render most of the site unsuitable or only marginally suitable for use by the loggerhead shrike (see Figure 5.7-7 and Table 5.7-5). Therefore, it is very unlikely that this species would occur on the Project site during the operational phase, and thus impacts on this species due to operation-related injury or mortality would be less than significant.

Off-site Transmission Line. Along the proposed transmission line route, the only proposed permanent alteration to habitat would be the presence of steel transmission line poles, power lines, and 20-foot-wide paths allowing access to the poles. The design of the

transmission poles would not encourage perching or nesting by common ravens, and thus would not increase predation of loggerhead shrikes and their young by this species. Therefore, the proposed off-site transmission line impacts on this species due to operation-related injury or mortality would be less than significant.

Mountain Bluebird and Vesper Sparrow. These two species maintain sensitivity designations during the winter season, and utilize the Project site for wintering.

Construction.

Facility Site. Within the Project site, a total of 1,937 acres of existing natural habitat would be disturbed during construction (including initial vegetation mowing and grading in some areas). The mountain bluebird and vesper sparrow are mobile species capable of flying away from construction equipment, and thus they are unlikely to suffer injury or mortality during construction activity. Since neither species nests in the region, no nestlings or eggs would be lost. In addition to injury and mortality caused by physical contact with construction equipment, construction of the Project could result in harm to birds through substantial windblown dust in bare areas where vegetation has been cleared. However, both these species are mobile, and neither is bound to a limited territory in winter; thus, they would be able to move to nearby areas to avoid windblown dust. Since mountain bluebirds and vesper sparrows would be able to avoid construction machinery and windblown dust, the Project's impacts on these species would be less than significant. This impact is described in greater detail in Section 5.5.2.2.7 of the Biota Report, presented in Appendix E.

Off-site Transmission Line. Temporary construction impacts would typically be limited to a 50 by 100 foot area surrounding each transmission line pole, and would total approximately 0.1 acre at each pole location. Within these areas, mountain bluebirds and vesper sparrows would be able to avoid collisions with construction equipment. As neither species nests in the region, no loss of eggs or nestlings would occur. Therefore, the impact of construction of the proposed transmission line on mountain bluebirds and vesper sparrows would be less than significant.

Operation.

Facility Site. As discussed in Potential Impact 5.7-10: Loss of suitable habitat for special-status birds, the proposed removal and modification of on-site habitats would render most of the site unsuitable, or only marginally suitable for use by the mountain bluebird and vesper sparrow. Therefore, it is relatively unlikely that these species would occur on the Project site during the operational phase, and thus impacts on these species due to operation-related injury or mortality would be less than significant.

Off-site Transmission Line. Along the proposed transmission line route, the only proposed permanent alteration to habitat would be the presence of steel transmission line poles, power lines, and 20-foot-wide paths allowing access to the poles. The design of the transmission poles would not encourage perching by common ravens or birds of prey, and thus would not increase predation of mountain bluebirds or vesper sparrows by these species. Therefore, the proposed off-site transmission line impacts on these species due to operation-related injury or mortality would be less than significant.

Western Meadowlark. This species is fairly widespread within the Project site, and nests on the ground in open habitats.

Construction.

Facility Site. Within the Project site, a total of 1,937 acres of existing natural habitat would be disturbed during construction (including initial vegetation mowing and grading in some areas). Adult meadowlarks would be able to avoid ground disturbances during construction by flying away from construction equipment. However, should construction occur in the nesting season, injury or mortality to nestlings, or destruction of nests with eggs, could result. In addition to injury and mortality caused by physical contact with construction equipment, construction of the Project could result in harm to meadowlarks through substantial windblown dust in bare areas where vegetation has been cleared. Given the potential exposure to injury and mortality caused by construction-related ground disturbances and windblown dust, the Project's impacts on western meadowlarks due to injury and mortality would be significant, absent mitigation.

This potential impact would be reduced through Mitigation Measures 5.7-5 (Biological Monitor), 5.7-6 (Worker Environmental Awareness Program), 5.7-8 (Pre-Construction Nesting Bird Surveys). These measures would increase awareness regarding sensitive biological resources among site construction workers, and would require surveys and monitoring for sensitive species during appropriate seasons, including avoidance and minimization procedures in the event that species are detected. In addition, Mitigation Measure 5.6-2 (Develop and Implement Fugitive Dust Emission Control Plan) would reduce the impact of windblown dust. The proposed measures would substantially reduce the risk of injury or mortality to western meadowlarks on-site, and would reduce this impact to a less than significant level. This impact is described in greater detail in Section 5.5.2.2.10 of the Biota Report, presented in Appendix E.

Off-site Transmission Line. Temporary ground disturbances in natural habitats associated with construction of these facilities would total approximately 0.1 acre at each pole location. Within these areas, adult and fledged juvenile western meadowlarks, which are highly mobile, would be able to avoid collisions with construction equipment. The possibility

of nests, eggs, or nestlings being destroyed in this small area would be relatively low, due to the small quantity of habitat that would be impacted. Therefore, the impact of construction of the proposed transmission line on the western meadowlark through mortality or injury would be less than significant. This impact would be further reduced through Mitigation Measures 5.7-5 (Biological Monitor), 5.7-6 (Worker Environmental Awareness Program), and 5.7-8 (Pre-Construction Nesting Bird Surveys).

Operation.

Facility Site. As discussed in Potential Impact 5.7-10: Loss of suitable habitat for special-status birds, the proposed removal and modification of on-site habitats would render most of the site unsuitable or only marginally suitable for use by the western meadowlark (see Figure 5.7-7 and Table 5.7-5). Therefore, it is very unlikely that this species would occur on the Project site during the operational phase, and thus impacts on this species due to operation-related injury or mortality would be less than significant.

Off-site Transmission Line. Along the proposed transmission line route, the only proposed permanent alteration to habitat would be the presence of steel transmission line poles, power lines, and 20-foot-wide paths allowing access to the poles. The design of the transmission poles would not encourage perching or nesting by common ravens and birds of prey, and thus would not increase predation of western meadowlarks and their young by these species. Therefore, the proposed off-site transmission line impacts on this species due to operation-related injury or mortality would be less than significant.

Summary. As discussed above, the Project's impacts relative to injury or mortality of special-status bird species would be potentially significant for the lark sparrow, loggerhead shrike, and western meadowlark. Mitigation Measures 5.7-5 (Biological Monitor), 5.7-6 (Worker Environmental Awareness Program) and 5.7-8 (Pre-construction Nesting Bird Surveys) would increase awareness regarding sensitive biological resources among site construction workers, and would require surveys and monitoring for sensitive species during appropriate seasons, including avoidance and minimization procedures in the event that species are detected. In addition, Mitigation Measure 5.6-2 (Develop and Implement Fugitive Dust Emission Control Plan) would reduce the impact of windblown dust on bird species. The proposed measures would substantially reduce the risk of injury or mortality to lark sparrows, loggerhead shrikes, and western meadowlarks. After incorporation of the proposed mitigation measures, the Project's impacts related to injury or mortality of these species would be less than significant. This impact is described in greater detail in Section 5.5.2.2 of the Biota Report, presented in Appendix E.

Potential Impact 5.7-10: Loss of suitable habitat for special-status birds.

As described in Section 5.7.3.2.1, construction of the proposed Project would disturb approximately 1,937 acres of existing natural habitats through initial site mowing and grading in some areas. Approximately 731 acres of these habitats would be permanently eliminated, replaced by Project facilities. The remaining 1,206 acres initially disturbed would be permanently modified through Project operation, including effects such as shading from solar panels and regular vegetation mowing. Under existing conditions, the on-site vegetation communities provide valuable nesting, roosting, and foraging habitat for a variety of common and special-status wildlife species, including the 10 special-status birds documented to use the site during the nesting/special-status season (long-eared owl, merlin, prairie falcon, ferruginous hawk, greater roadrunner, lark sparrow, loggerhead shrike, mountain bluebird, vesper sparrow, and western meadowlark). The proposed removal and modification of on-site habitats would render most of the site unsuitable, or only marginally suitable for use by these species. However, because the species' habitat requirements differ, the extent to which installation of the proposed solar facility would reduce the habitat suitability for these species would also vary.

Along the proposed transmission line route, biological field investigations indicated the presence of nine special-status bird species. Construction of the transmission line would require only minimal ground-disturbance, consisting of temporary impact zones measuring approximately 50 by 100 feet (0.1 acre) surrounding each of the 36 proposed off-site transmission line poles. Further, the vast majority of the proposed ground disturbance would occur within the existing developed roadbed or adjacent disturbed shoulders of 170th Street West within the Los Angeles County portion of the route, and within agricultural lands in the Kern County portion. The total acreage of natural habitats temporarily removed during construction of the proposed transmission line would be approximately 5 acres, and permanent impacts, which would be limited to the footprint of the physical poles and access paths, would total less than 1 acre for the entire route. Owing to the minimal acreage to be impacted, combined with the fact that each of the 36 off-site areas to be impacted would be typically separated by approximately 600–700 feet of unimpacted habitat, impacts on special-status bird species along the proposed transmission line route would generally be minimal. Significance of impacts is assessed on a species-by-species basis, below.

Following completion of construction, operation of the proposed facility would have the potential to affect long-term habitat suitability for sensitive birds occupying the site. The proposed PV power generating facility would operate with minimal exhausts, waste products, and activity. Operational activities which would impact special-status bird habitat would include: permanent shading of habitats beneath and adjacent to the proposed solar panels, which would affect the plant community as well as preventing an obstructed view of the

ground by perched or soaring birds; noise; and continued mowing of on-site vegetation to a height of 6-inches or less during most of the year.

The proposed Project would have associated noise generating equipment and activities during the operational phase that could potentially affect wildlife on the 2,100-acre site in the long term. Maintenance activities involving vehicular travel and limited equipment usage on the site would be expected to result in minor, dispersed noise generation primarily during daylight hours. Additionally, the solar facility would include inverters and transformers, possibly within enclosures, mounted on approximately 185 concrete pads dispersed throughout the site (refer to Figure 4.4-1A). Noise levels would to be limited to 70 dBA within 3 feet of the equipment and at or below 60 dBA within 9 feet of the equipment, regardless of whether enclosures are used or not. The USFWS establishes a noise threshold of 60 dBA for several endangered species. While no threatened or endangered species are present on-site, the 60 dBA threshold has been applied as a conservative reference point for this analysis. The elevated noise levels would only occur during daylight hours when the facility site is generating electricity, and would be generally limited to an area within each of the 185 equipment pads. For reference, the area of noise at or above 60 dBA around each inverter/transformer location is calculated to be approximately 300 square feet for a total area of about 55,500 square feet for all 185 locations, or less than 1.5 acres (0.07 percent) of the 2,100-acre site.

If tracker technology is utilized (i.e., versus fixed tilt solar arrays), tracker motors would operate during daylight hours to sequentially position the panels relative to the sun. Tracker drive motors (1/2 horsepower electric motors) would be located throughout the solar fields and would vary in number from approximately 6,500 for the fixed tilt trackers with horizontal trackers along SR-138 option, and up to 26,000 tracker motors for the horizontal tracker option if implemented over the entire site. Tracker motor noise is expected to be 60 dBA at 3 feet from the motors. This noise level would be only slightly perceptible to humans or wildlife at a distance of 10 feet from the motors. The tracker motors (1/2 horsepower, electric) would operate intermittently for up to approximately 5 seconds at a time during daylight hours. Additionally, the tracker motors would operate continuously for approximately one hour every evening after sunset to reset the panels to face the east in preparation for the following day. The slow movement of the panels during the day and the evening resetting would not typically generate audible noise. The tracker motor related noise associated with daytime operation and reset of the panels every evening after sunset would generate low noise levels that would not be expected to adversely affect wildlife since the motors would be dispersed on the site, and the noise from individual motors would be only slightly audible at a distance of 10 feet from the motors (50 dBA or less).

Because of the very low noise levels associated with the motors, and because noise associated with inverters/transformers would be limited to the vicinity of the equipment

during daylight hours, operation of the aforementioned electrical equipment would be expected to result in less than significant noise effects on wildlife.

Along the proposed transmission line route, annual inspections and occasional line and pole maintenance on an as-needed basis would have the potential to disrupt bird habitat. Typical maintenance activities would not normally require disturbance or removal of vegetation. Transmission line maintenance activities over the life of the Project would typically consist of annual visual inspections and periodic washing of insulators at pole locations on an as needed basis. These activities would be infrequent and transient in nature, and would not normally require disturbance or removal of vegetation. Conductor (transmission line) clearances for underlying vegetation would be maintained in accordance with CPUC General Order (GO) 95 (Rules for Overhead Electric Line Construction). The minimum conductor-to-ground clearance for the proposed 230-kV transmission line is 30 feet (or higher depending on pole type) as shown on Figure 4.4-6. Maintenance of minimum vegetation clearance distances (10 feet clearance) would require limited, if any, infrequent trimming to meet CPUC GO 95 requirements.

Along the Los Angeles County portion of the route, occasional routine line or pole maintenance could be performed within the existing road ROW using bucket-lift trucks and would not require disturbance or removal of existing vegetation. In Kern County, the 20-foot-wide paths accessing the poles would be maintained, if necessary, to control vegetative growth so as to not preclude vehicular access to pole locations; however, these pathways are not proposed in natural habitat areas. The majority of the land adjacent to the public road ROW for 170th Street West in Kern County is flat agricultural land that would require minimal, if any, vegetation maintenance for pole access.

Impacts related to habitat loss for each of the special-status species on-site are described below.

Ferruginous Hawk, Long-eared Owl, and Merlin. These birds of prey are analyzed collectively because of their shared preference for open habitats for foraging and use of trees for roosting or nesting. Individual merlins were observed three times during biological surveys of the Project site, all during winter. The only ferruginous hawk observation pertained to an individual south of SR-138 in February 2010. No long-eared owls were observed, but a wing feather found in June 2010 south of SR-138 confirmed this species' presence. For further details of occurrences and habitat requirements of this species, see Sections 4.10.1.2.8, 4.10.1.2.9, and 4.11.2.2.2 of the Biota Report, Appendix E of this EIR.

Facility Site. All 2,044 acres of natural habitats present on-site (annual grassland, wildflower field, and rabbitbrush scrub) were previously disturbed by decades of agricultural practices, but are suitable for foraging by all three of these species. Thus the permanent

removal of 731 acres of natural habitats during construction and modification of an additional 1,206 acres through shading, and fuel modification practices would impact all three species. After construction, the solar arrays that would be present over most of the site would deter all of these species from hunting there. Solar panels would hinder the ability of these species to maneuver and, particularly in the case of the ferruginous hawk and merlin, to locate prey visually. Some possibility exists that these species, particularly the merlin, could continue to use the site occasionally after construction, but habitat suitability would be reduced. Because literature describing the effects of PV solar installations on habitat suitability for foraging raptors is very limited, the exact extent to which the proposed facility would reduce suitability is unknown.

The loss of 8.8 acres of orchard habitat and 1.8 acres of ornamental trees around the farm house also could potentially impact these species by removing suitable roosting habitat for the ferruginous hawk and merlin, as well as nesting habitat for the long-eared owl. However, winter and spring surveys in 2009 produced no evidence that these species used the site in this manner. Orchard surveys conclusively showed that no long-eared owls were nesting on-site.

Mowing of all on-site vegetation (except for avoidance areas) to a height of 6-inches or less also could affect the quality of habitat for many native wildlife species, and this change could affect the available prey base for the merlin, long-eared owl, and ferruginous hawk. The effects of mowing alone, which should encourage the growth of native annual plants over shrubs, should not have a negative effect on the presence of the small prey birds favored by merlins or the small mammals favored by long-eared owls. However, due to the long-term elimination of shrubs from the site, it may suppress numbers of black-tailed jackrabbit and desert cottontails, which likely are important prey items for the ferruginous hawk in the area.

Off-site Transmission Line. None of these species was detected during surveys of the transmission line route, but natural and agricultural habitats throughout this area present suitable foraging habitat for all three. Also, ornamental trees and an orchard north of Gaskell Road could support roosting by these species, or nesting by the long-eared owl. Permanent impacts to habitats along the off-site transmission line would be minimal, due to the small acreage affected.

Summary. Impacts to the ferruginous hawk, long-eared owl, and merlin due to habitat loss would be significant, absent mitigation. This impact would stem from the proposed habitat conversion within the Project site; the proposed transmission line would not affect these species substantially.

The restored and revegetated areas required by Mitigation Measure 5.7-1 (HEVMP) would off-set this habitat loss somewhat by preserving 101 acres of habitat on-site. The areas

preserved would be enhanced through removal of unofficial roads, dump sites, and other anthropogenic discontinuities in the existing vegetation in the preserved areas; limiting of non-native vegetation; and ensuring that the enhancement/revegetation of these areas be implemented so as to ensure continued stability of the habitats. These enhancements should improve habitat for a variety of species on which the ferruginous hawk, long-eared owl, and merlin prey. By re-introducing Joshua trees to the site, these measures would also increase the suitability of the mitigation areas for raptor use above and beyond existing conditions by providing roosting and nesting habitat. By requiring preservation and enhancement of habitat areas surrounding Drainage A, Drainage C, and in the Joshua tree recruitment area, Mitigation Measure 5.7-1 would also affect areas in the interior of the site, where one or more of these species may occur on occasion after construction. In these areas, this mitigation measure would require spreading of topsoil stockpiled after construction over disturbance zones and the promotion of the growth of local native plants over non-native plants. These measures should contribute to continued use of the site by native wildlife species, such as the small birds on which the merlin preys and the small mammals on which the long-eared owl preys.

To complement the on-site enhancements provided by Mitigation Measure 5.7-1, Mitigation Measure 5.7-2 would further reduce this impact by requiring the preservation of 450 acres of mitigation land at an off-site location(s) in the Antelope Valley. This habitat would be similar to those currently found on-site, and the location would be chosen based in part on the habitat requirements of such species as the burrowing owl and grassland bird species. These species occupy open habitats similar to those preferred by the ferruginous hawk, long-eared owl, and merlin for foraging. Because of the enhancement, management, and monitoring required by these measures, the quality of the habitats to be preserved would exceed the value of the existing, previously disturbed habitats that would be affected by the Project. Implementation of the proposed mitigation measures would reduce this impact to less than significant.

Greater Roadrunner. Only one greater roadrunner was observed during biological surveys, in the northeastern corner of the site, near SEA #60, in December 2008. For more information on the habitat requirements of this species, see Section 4.10.1.2.4 of the Biota Report, Appendix E of this EIR.

Facility Site. The Project would permanently eliminate approximately 731 acres of existing natural habitats, including rabbitbrush scrub, California annual grassland, and wildflower fields, from the Project site during construction. An additional 1,206 acres of habitat would be modified by long-term operations, including shading from solar panels, noise, and mowing of on-site vegetation to a height of 6 inches or less during most of the year. The grassland and wildflower field habitats are poorly suited for this species, which generally inhabits areas with tall shrubs. Even the rabbitbrush scrub on the Project site, given the relatively small size of the shrubs (uniformly less than the 6 to 10 feet preferred by this

species; Hughes 1996), is not optimal habitat for this species. However, greater roadrunners may nest in the Joshua tree woodland in SEA #60 (such as that near the only location on-site where this species was recorded) and occasionally forage on the site. Therefore, some of the site likely is used infrequently, if at all, by this species. It is possible that greater roadrunners could forage within the solar arrays following Project construction, as long as cover is nearby. However, the fence and 100-foot fire break around the perimeter of the site, which would be kept free of vegetation, would likely deter this species from coming onto the site.

Post-construction, the remaining vegetation (primarily annual grassland and wildflower field) would be mowed to a height of 6-inches or less for the majority of the year. Because construction and initial vegetation clearing would result in little if any greater roadrunner foraging on-site, vegetation mowing would not be expected to impact habitat for this species.

Off-site Transmission Line. No roadrunners were detected along the transmission line route during biological surveys. However, this species may nest near the transmission line route, in Joshua tree woodland in SEA #60 west of 170th Street West, as well as outside the SEA in Joshua tree woodland on the east side of 170th Street West north to West Avenue B. It also may nest in the saltbush scrub habitat at the northern extreme of the route, in Kern County.

Permanent impacts to natural habitats along the off-site transmission line, which would be limited to the footprint of the 12 poles located in these habitats, would total only 0.01 acre. Each of the 46 (10 on-site and 36 off-site) areas to be impacted would be typically separated by approximately 600–700 feet of unimpacted habitat. The operation of the transmission line after construction would result in no further impacts to greater roadrunner habitat along the transmission line route. Occasional line or pole maintenance in areas with natural habitats could be performed using bucket-lift trucks within the existing road ROW in the Los Angeles County portion of the route.

Summary. Impacts to the greater roadrunner due to habitat loss on-site would be significant, absent mitigation. The restored and revegetated areas required by Mitigation Measure 5.7-1 (HEVMP) would off-set habitat loss somewhat by preserving 101 acres on-site where greater roadrunners could forage. Among these areas is the 8.6 acres preserved in the Joshua tree recruitment area and associated buffer in the north-central portion of the site. This area is located adjacent to suitable nesting habitat in the Joshua tree woodland of SEA #60. The northeastern extreme of the preserved habitat surrounding the drainage extension of Drainage A is also near Joshua woodland. Under Mitigation Measure 5.7-1, shrub cover in shrub-dominated communities would exceed 30 percent. Creating areas of denser shrub cover near Joshua tree woodland would likely enhance habitat for this species. Re-introduction of Joshua trees and junipers to the site, as would be required under Mitigation Measure 5.7-1, would potentially create nesting habitat for this species.

To complement the on-site enhancements provided by Mitigation Measure 5.7-1, Mitigation Measure 5.7-2 would further reduce this impact by requiring the preservation of 450 acres of mitigation land at an off-site location(s) in the Antelope Valley. Although this measure specifies that lands acquired for off-site mitigation should be similar to those found on-site, those containing Joshua tree woodland and junipers would also be considered desirable. Acquisition of such lands could result in the preservation and enhancement of potential nesting habitat for this species, which is lacking on the site. Because of the enhancement, management, and monitoring required by these measures, the quality of the habitats to be preserved would be expected to exceed the value of the existing, previously disturbed habitats that would be affected by the Project. Implementation of the proposed mitigation measures would reduce this impact to less than significant.

Lark Sparrow (Special Animal when Nesting).

Facility Site. While lark sparrows generally prefer more open habitats, and while they may nest on the ground, they prefer habitats where trees or shrubs provide song perches. This is shown on the facility site, where the species has been found only in areas with trees, including Joshua trees, the abandoned orchard, and ornamental trees around the farm house and near the eastern site perimeter. All 2,044 acres of existing natural habitats on-site are considered to be at least marginally suitable for use by this species. For further details of occurrences and habitat requirements of this species, see Section 4.10.1.2.5 of the Biota Report, Appendix E of this EIR. The only trees that would be removed through development of the Project are those in the abandoned orchard (8.8 acres) and near the ranch house (1.8 acres). In addition to removal of the trees in these areas, the Project would permanently eliminate approximately 731 acres of existing natural habitats, including rabbitbrush scrub, California annual grassland, and wildflower fields, from the Project site during construction. An additional 1,206 acres of habitat would be modified by long-term operations, including shading from solar panels, noise, and mowing of on-site vegetation to a height of 6 inches or less during most of the year. These areas are currently at least marginally suitable for this species, particularly the rabbitbrush scrub north of SR-138. However, the fact that the lark sparrow was not found during surveys in these areas suggests that habitat is not optimal. Thus, only a small portion of the 1,937 acres of natural habitats that would be removed or modified are optimal for lark sparrows. In addition, while habitat suitability after construction would be diminished, some possibility exists that lark sparrows could occasionally occur in the solar arrays. However, these areas do not typify the open habitats preferred by this species.

The proposed vegetation mowing activities should not further impact this species' ability to forage on-site.

Off-site Transmission Line. Only one lark sparrow was detected during surveys of the off-site transmission line, on June 10, 2009, near the northern terminus of the route, in Kern County. Permanent impacts to natural habitat along the off-site transmission line, which would be limited to the footprint of the 12 poles located within these habitats, would total only 0.01 acre. Trees potentially used by this species for song perches would be avoided. Each of the 36 off-site areas to be impacted at and around pole locations would be typically separated by approximately 600–700 feet of unimpacted habitat.

The operation of the transmission line after construction would result in no further impacts to lark sparrow habitat within the transmission line route. Occasional line or pole maintenance could be performed using bucket-lift trucks within the existing road ROW in the Los Angeles County portion of the route. In Kern County, these activities may be performed outside the ROW, but would not disturb or remove vegetation after the initial clearing of the 20-foot-wide paths allowing access to the poles.

Summary. Impact to the lark sparrow due to habitat loss on-site would be significant, absent mitigation. The restored and revegetated areas required by Mitigation Measure 5.7-1 (HEVMP) would off-set habitat loss somewhat by preserving 101 acres on-site where lark sparrows could forage and nest. The 8.6 acres preserved in the Joshua tree recruitment area and associated buffer, adjacent to SEA in the north-central portion of the site, would be among these areas. This area is some of the better habitat for this species on-site, as it is near the Joshua tree woodland and includes some seedlings that are tall enough to serve as singing perches. In addition, enhancement of habitat along Drainages A and C, as required by Mitigation Measure 5.7-1, would improve habitat in those areas, by removing unofficial roads, dump sites, and any other anthropogenic discontinuities in the existing vegetation and seeding these areas with native plants; limiting non-native vegetation; and making these areas more suitable for this species by requiring the planting of Joshua trees and junipers, which would provide suitable song perches. Such measures would improve habitat quality for the lark sparrow in avoidance areas on the Project site.

To complement the on-site enhancements provided Mitigation Measure 5.7-1, Mitigation measure 5.7-2 would further reduce this impact by requiring preservation and/or restoration of an additional 450 acres. These lands would contain vegetation communities similar to those found on the Project site, but may also contain Joshua tree woodland and some junipers. Because of the enhancement, management, and monitoring required by these measures, the quality of the habitats to be preserved would exceed the value of the existing, previously disturbed habitats that would be affected by the Project. Implementation of the proposed mitigation measures would reduce this impact to less than significant.

Loggerhead Shrike.

Facility Site. This species nests in the orchard south of SR-138, where one pair raised two young in 2009 and where two pairs were observed in February 2010. It is also present around the margins of the site, near off-site Joshua tree woodland (at the northern boundary of the site) and planted, non-native trees (along the eastern boundary just north of SR-138). All 2,044 acres of existing natural habitats on-site are considered to be at least marginally suitable for use by this species. For further details of occurrences and habitat requirements of this species, see section 4.10.1.2.7 of the Biota Report, Appendix E of this EIR.

The Project would permanently eliminate approximately 731 acres of existing natural habitats, including rabbitbrush scrub, California annual grassland, and wildflower fields, from the Project site during construction. An additional 1,206 acres of habitat would be modified by long-term operations, including shading from solar panels, noise, and mowing of on-site vegetation to a height of 6 inches or less during most of the year. These practices would replace the existing tree-dominated vegetation communities on-site (8.8 acres of orchard and 1.8 acres of ornamental vegetation, including trees) with herbaceous vegetation, as the proposed mowing would preclude the growth of trees. Development of the Project would likely affect loggerhead shrike habitat in two ways: by eliminating nesting opportunities where trees would be removed (mostly around the ranch house and orchard, just south of SR-138), and by altering foraging habitat. Changes to foraging habitat could potentially alter prey availability and hinder shrikes' ability to hunt, because of visual obstructions posed by solar panels. While the panels, which would be 12 to 15 feet at their highest point, may provide suitable hunting perches for this species, the placement of the panels in a series of long rows would limit the loggerhead shrikes' ability to locate prey from a single perch and over a large area, as this species does characteristically. Some possibility may exist that a reduced presence of shrikes would persist in the solar fields, if this species is able to perch on the solar panels and hunt in the openings between panel rows. However, Project development would result in the elimination of nesting and roosting habitat on-site, through removal of all shrubs and trees, rendering portions of the site away from the margins unusable, even as foraging habitat. In addition, because all habitat within 100 feet inside the fence line will be permanently removed as a fire break, loggerhead shrikes are relatively unlikely to forage in on-site areas near suitable roosting and nesting habitat off-site. This impact is limited somewhat because, in its present condition, most of the site lacks the trees and large shrubs suitable for nesting by this species, which is a CSC when nesting only. The exception is a 10.6 acre area encompassing the abandoned orchard and the ornamental trees around the ranch house. This area currently supports up to two pairs of loggerhead shrikes, which likely forage in surrounding areas as well as in the immediate vicinity of the orchard and ranch house. Territory size for this species has varied greatly, from a mean of 12 to a mean of 85 acres, depending on the region studied (Yusef 1996). Therefore, two displaced territories could occupy up to 170 acres. In addition to displacing the shrikes documented on-

site, elimination and modification of 1,937 acres of suitable habitat for this species would preclude larger populations from becoming established within the site.

After loss of habitat from initial construction activities, impacts would be minimal. Mowing of the site would result in no habitat impacts to this species, which is expected to be absent, or very scarce, after construction.

Off-site Transmission Line. Loggerhead shrikes were observed several times in natural and agricultural habitats along the transmission line route, and were confirmed nesting in the area. Impacts to these habitats, which would include the footprint of the poles themselves (0.001 acre each) and the 20-foot-wide pathways to the poles in the Kern County portion of the route. Trees potentially used by this species for nesting or perching would be avoided (the orchard north of Gaskell Road, where three poles will be located, is essentially a solid canopy of fruit trees and not well suited to nesting by this species of open habitats). Generally, each of the 36 off-site pole areas to be impacted would be separated by approximately 600–700 feet of unimpacted habitat.

The operation of the transmission line after construction would result in no further impacts to loggerhead shrike habitat within the transmission line route. Occasional line or pole maintenance could be performed using bucket-lift trucks within the existing road ROW in the Los Angeles County portion of the route. In Kern County, these activities may be performed outside the ROW, but would not typically disturb or remove vegetation after the initial clearing of the 20-foot-wide paths allowing access to the poles. Therefore, impacts to loggerhead shrikes due to habitat loss along the transmission line route would be less than significant.

Summary. Impacts to the loggerhead shrike due to habitat loss on-site would be significant, absent mitigation. The restored and revegetated areas required by Mitigation Measure 5.7-1 (HEVMP) would off-set this habitat loss somewhat by preserving 101 acres on-site where loggerhead shrikes could forage. The 8.6 acres preserved in the Joshua tree recruitment area and associated buffer, adjacent to SEA #60 in the north-central portion of the site, would continue to provide foraging habitat for shrikes nesting in the SEA. Enhancement of habitat along Drainages A and C would improve foraging habitat (relatively open habitats, including some shrubs, trees, or other perches) as well by removing anthropogenic discontinuities in the vegetation such as unofficial roads and dump sites, ensuring less than 5 percent ground cover by non-native plant species, and ensuring that vegetative cover exceeds 95 percent. These requirements would likely improve habitat for prey species of the loggerhead shrike. This measure may also create new nesting habitat in the long term through planting of Joshua trees and junipers in on-site mitigation areas.

To complement the on-site enhancements provided Mitigation Measure 5.7-1, Mitigation Measure 5.7-2 would further reduce this impact by requiring preservation and/or restoration of an additional 450 acres. These lands would contain vegetation communities similar to those found on the Project site. However, the inclusion or planting of Joshua trees and junipers in the acquired lands would provide nesting opportunities for this species, resulting in preservation of habitats that would exceed the value of the existing habitat that would be affected by the Project. Funding for management and monitoring would also be required by these measures, and would ensure that performance standards are met. Implementation of the proposed mitigation measures would reduce this impact to less than significant.

Mountain Bluebird.

Facility Site. Mountain bluebirds were detected on several occasions in the winter of 2008–2009, with higher numbers south of SR-138. For further details of occurrences and habitat requirements of this species, see Section 4.10.1.2.10 of the Biota Report, Appendix E of this EIR. The Project would permanently eliminate approximately 731 acres of existing natural habitats, including rabbitbrush scrub, California annual grassland, and wildflower fields, from the Project site during construction. An additional 1,206 acres of habitat would be modified by long-term operations, including shading from solar panels, noise, and mowing of on-site vegetation to a height of 6 inches or less during most of the year. However, mountain bluebirds were not found in the densest areas of rabbitbrush scrub on-site, and are more likely in the grassland and wildflower fields on-site, and in the more open areas of rabbitbrush scrub, such as that just south of Drainage A. All 2,044 acres of existing natural habitats on-site are considered to be at least marginally suitable for use by this species; however, all habitat that would be removed or altered is not equally suitable for this species. After construction, this species is unlikely to persist in the solar arrays. As this species prefers open areas, such as grasslands with low perches, the less open habitat with solar panels 12 to 15 feet high would not be suitable.

In the long-term, Project impacts such as shading from solar panels, noise, and repeated mowing of vegetation would be expected to render the Project site unsuitable for use by mountain bluebirds, except for avoidance/mitigation areas.

Off-site Transmission Line. No mountain bluebirds were detected along the transmission line during biological surveys, but relatively little field work was conducted in this area in winter, when this species is present in the region. Also, the agricultural and natural habitats present along the transmission line are suitable for this species. Permanent impacts to these habitats along the off-site transmission line would total less than 1 acre, and would not occur in natural habitats. Each of the 36 off-site pole areas to be impacted would be typically separated by approximately 600–700 feet of unimpacted habitat.

The operation of the transmission line after construction would result in no further impacts to mountain bluebird habitat within the transmission line route. Occasional line or pole maintenance could be performed using bucket-lift trucks within the existing road ROW in the Los Angeles County portion of the route. In Kern County, these activities may be performed outside the road ROW, but would not disturb or remove vegetation after the initial clearing of the 20-foot-wide paths allowing access to the poles.

Summary. Impacts to the mountain bluebird due to loss of habitat on-site would be significant, absent mitigation. The restored and revegetated areas required by Mitigation Measure 5.7-1 (HEVMP) would off-set this habitat loss somewhat by preserving 101 acres of habitat on-site. The southern end of the Project site, surrounding Drainage C, comprises 45 acres of this habitat. This area is typical of the open, grassy habitat this species often occupies. Drainage A and the 100-foot setback surrounding it comprises another 47 acres of this habitat, at a location where this species was recorded in 2009. In addition, this mitigation measure would enhance these areas by removing unofficial roads, dump sites, and other anthropogenic discontinuities in the existing vegetation; requiring that native vegetation will exceed 90 percent; and limiting cover from non-native vegetation. This would improve habitat for mountain bluebirds in the areas to be avoided on-site. The off-site mitigation required by Mitigation Measure 5.7-2 would result in preservation and/or restoration of an additional 450 acres. This habitat would be similar to those currently found on-site and would be suitable for grassland species found in the Antelope Valley. Because of the enhancement, management, and monitoring required by this measure, the quality of the habitats to be preserved would exceed the value of the existing, previously disturbed habitats that would be affected by the Project. Implementation of the proposed mitigation measures, therefore, further would reduce this impact to less than significant.

Prairie Falcon.

Facility Site. Prairie falcons were recorded twice on the Project site during biological surveys, both times in the more open annual grassland habitat south of SR-138, once in January 2009 and once in April 2009. No nesting habitat is present anywhere on-site, but this species, a CDFG Watch List species when nesting, is present year-round in the region. Prairie falcons forage over large, undefended areas (Steenhof 1998), and may hunt on-site while nesting in the western San Gabriel Mountains. For further details of occurrences and habitat requirements of this species, see Section 4.10.1.2.12 of the Biota Report, Appendix E of this EIR.

While prairie falcons are often associated with grassland habitats, they are also associated with scrub habitats and with a mixture of grasses and low shrubs (Steenhof 1998). The Project site is former agricultural lands, but the vegetation is mostly native, and the grassland and relatively sparse scrub habitats are those preferred by this species. Therefore, virtually all

of the habitat on the Project site, including the grassland and wildflower fields south of SR-138 and the scrub habitat north of SR-138, is currently of value to this species for foraging. Not only the 731 acres of permanently impacted habitat, but also the 1,206 additional acres that would be modified through shading from solar panels, and fuel modification practices, would be unsuitable for foraging by this species. Prairie falcons hunt in low, active flight and rely on surprise to capture their prey, mostly small mammals, but also small birds and lizards (Steenhof 1998). Because of the presence of rows of solar panels, prairie falcons would find it difficult to employ the relatively rapid and active flight that it relies on while hunting. They would also have difficulty spotting prey from above due to the visual obstacles posed by the panels.

Off-site Transmission Line. One prairie falcon was observed along the off-site transmission line, and this species likely occurs in both natural and agricultural habitats in the area. Permanent impacts to these habitats along the off-site transmission line would total less than 1 acre, and would not occur in natural habitats. Generally, each of the 36 off-site pole areas to be impacted would be typically separated by approximately 600–700 feet of unimpacted habitat.

Occasional line or pole maintenance would result in no impacts to this species. These activities could be performed using bucket-lift trucks within the existing road ROW in the Los Angeles County portion of the route. In Kern County, they may be performed outside the road ROW, but would not disturb or remove vegetation after the initial clearing of the 20-foot-wide paths allowing access to the poles.

Summary. Impacts to the prairie falcon due to habitat loss on-site would be significant, absent mitigation. The restored and revegetated areas required by Mitigation Measure 5.7-1 (HEVMP) would offset this habitat loss somewhat by preserving 101 acres on-site where prairie falcons could forage. The high mobility of this species, combined with the relatively large size of the mitigation habitat areas proposed, would ensure that these areas would suitable for foraging, despite the fact that the on-site mitigation lands would be located in three areas of the site. Enhancement of habitat within the Joshua tree recruitment area and associated buffer, and along Drainages A and C, would include removing unofficial roads, dump sites, and any other anthropogenic discontinuities in the existing vegetation and seeding with native plant species; limiting non-native vegetation; and the implementation of enhancement/revegetation to ensure suitability of Drainage A and C for grassland bird species. As a result, this measure would improve habitat suitability for small mammals, birds, and other prairie falcon prey within proposed mitigation areas, where no Project facilities are proposed. The off-site mitigation required by Mitigation Measure 5.7-2 would result in preservation and/or restoration of an additional 450 acres. This would include largely open vegetation communities suited to foraging by this species, such as exist on the site currently. Because of the enhancement, management, and monitoring required by this measure, the

quality of the habitats to be preserved would exceed the value of the existing, previously disturbed habitats that would be affected by the Project. Implementation of the proposed mitigation measures, therefore, would reduce this impact to less than significant.

As with the on-site habitat, these areas would be enhanced and made more suitable for prairie falcons and other native species. Incorporation of this measure would therefore reduce this potential impact to less than significant.

Vesper Sparrow.

Facility Site. This species was found in low numbers in various parts of the Project site and in California annual grassland, rabbitbrush scrub, and the abandoned orchard. Wildflower fields are also suitable for this species. All 2,044 acres of existing natural habitats on-site are considered to be at least marginally suitable for use by this species. For further details of occurrences and habitat requirements of this species, see Section 4.10.1.2.15 of the Biota Report, Appendix E of this EIR.

The Project would permanently eliminate approximately 731 acres of existing natural habitats, including rabbitbrush scrub, California annual grassland, and wildflower fields, from the Project site during construction. An additional 1,206 acres of habitat would be modified by long-term operations, including shading from solar panels, noise, and mowing of on-site vegetation to a height of 6 inches or less during most of the year. These areas are also currently suitable for vesper sparrows. The presence of solar panels would reduce habitat suitability for this species, which prefers open grasslands. In addition, the proposed vegetation mowing would further decrease the likelihood that this species would continue to occupy the site following Project implementation.

Off-site Transmission Line. This species was not observed along the off-site transmission line, but suitable habitat is present in natural habitats in this area. However, owing to the minimal acreage to be impacted, combined with the fact that each of the 36 off-site pole areas to be impacted would be separated by approximately 600–700 feet of unimpacted habitat, impacts to vesper sparrow habitat along the proposed transmission line route alone would be minimal.

Occasional line or pole maintenance would result in no impacts to this species. These activities could be performed using bucket-lift trucks within the existing road ROW in the Los Angeles County portion of the route. In Kern County, they may be performed outside the road ROW, but would not disturb or remove vegetation after the initial clearing of the 20-foot-wide paths allowing access to the poles.

Summary. Impacts to vesper sparrows due to habitat loss on-site would be significant, absent mitigation. The restored and revegetated areas required by Mitigation Measure 5.7-1

(HEVMP) would off-set this habitat loss somewhat by preserving 101 acres on-site. Under this measure, unofficial roads, dump sites, and other anthropogenic discontinuities in the existing vegetation in these areas would be remedied and seeded with native vegetation. In addition, non-native vegetative cover would be limited, and the vegetation in Drainages A and C would be managed to remain suitable for grassland bird species. Through these methods, the mitigation areas would be managed in a way that would enhance the habitat value for this species. To complement the on-site enhancements provided Mitigation Measure 5.7-1, Mitigation Measure 5.7-2 would further reduce this impact by requiring the preservation of 450 acres of mitigation land at an off-site location(s) in the Antelope Valley. This habitat would be similar to those currently found on-site and would be suitable for grassland species found in the Antelope Valley, such as the vesper sparrow. Because of the enhancement, management, and monitoring required by this measure, the quality of the habitats to be preserved in the on-site and off-site mitigation areas would exceed the value of the existing, previously disturbed habitats that would be affected by the Project. Implementation of the proposed mitigation measures would, therefore, reduce this impact to less than significant.

Western Meadowlark.

Facility Site. Although western meadowlarks are generally associated with grassland habitats, they were found in all parts of the Project site and in all natural habitats, in winter and the breeding season. Thus all of natural habitat on-site should be considered suitable for this species. For further details of occurrences and habitat requirements of this species, see Section 4.10.1.2.16 of the Biota Report, Appendix E of this EIR.

The proposed Project would permanently eliminate approximately 731 acres of existing natural habitats, including rabbitbrush scrub, California annual grassland, and wildflower fields, from the Project site during construction. An additional 1,206 acres of habitat would be modified by long-term operations, including shading from solar panels, noise, and mowing of on-site vegetation to a height of 6 inches or less during most of the year. As the western meadowlark prefers open habitats, the rows of solar panels within the solar arrays will reduce habitat value for this species. Some possibility exists that this species would persist in small numbers to forage. But numbers are expected to be reduced significantly. Should this species persist on-site in any numbers, mowing of the site would potentially impact habitat suitability by removing ground cover. However, this species occupies a variety of grassland types and would likely tolerate vegetation at this height.

Off-site Transmission Line. Western meadowlarks occur in a variety of habitats along the off-site transmission line, including agricultural and natural habitats. However, given that permanent impacts in these areas would be limited, and that each of the 36 off-site pole areas to be impacted would be separated by approximately 600–700 feet of unimpacted habitat,

western meadowlarks would still be able to occupy the transmission line route. Also, occasional line or pole maintenance could be performed using bucket-lift trucks within the existing road ROW in the Los Angeles County portion of the route. In Kern County, these activities may be performed outside the road ROW, but would not disturb or remove vegetation after the initial clearing of the 20-foot-wide paths allowing access to the poles.

Summary. Impacts to the western meadowlark due to habitat loss on-site would be significant, absent mitigation. The restored and revegetated areas required by Mitigation Measure 5.7-1 (HEVMP) would off-set this habitat loss somewhat by preserving 101 acres of habitat on-site. The areas preserved would be enhanced by removal of unofficial roads, dump sites, and other anthropogenic discontinuities in the existing vegetation; requiring that vegetative cover in all vegetation communities exceed 90 percent; and limiting non-native vegetation in these areas. Therefore, habitat for western meadowlarks, which prefer areas with substantial cover from grass and plant litter (Davis and Lanyon 2008), would be improved in these areas. To complement the on-site enhancements provided Mitigation Measure 5.7-1, Mitigation Measure 5.7-2 would further reduce this impact by requiring the preservation of 450 acres of mitigation land at an off-site location(s) in the Antelope Valley. This habitat would be similar to those currently found on-site and would be suitable for grassland species found in the Antelope Valley, such as the western meadowlark. Because of the enhancement, management, and monitoring required by this measure, the quality of the habitats to be preserved would exceed the value of the existing, previously disturbed habitats that would be affected by the Project. Implementation of the proposed mitigation measures would reduce this impact to less than significant.

Potential Impact 5.7-11: Project Lighting Effects.

Some night lighting could temporarily occur in the event that construction work at night is needed in order to meet the construction schedule. In the event that nighttime work is needed, the Project work would be performed using the minimum illumination needed to perform the work safely. All lighting would be directed downward and shielded to focus illumination on the desired work areas only, and to ensure that light does not trespass onto adjacent areas or properties. As applicable, work in the solar field areas at night would be performed using battery or gas-powered light stands that would be directed to the work area. The performance of work with small battery or gas powered light stands utilizing the minimum required illumination and shielding in combination with focused lighting on the specific work areas would minimize potential lighting related effects on biological resources associated with nighttime work. The minimal temporary and transient night lighting that could occur during construction, as applicable, would not be anticipated to adversely impact biological resources in the Project area. No lighting is proposed along the proposed transmission line during operation.

The Project facility is proposed to include a lighting system during operation that is intended to provide operation and maintenance personnel with illumination for both normal and emergency conditions. Lighting would be designed to provide the minimum illumination needed to achieve safety and security objectives, and is proposed to be located at the O&M building, parking area, and the main plant access road at 170th Street West north of SR-138. As described in Section 4.0, Project lighting would be located at the O&M building, parking area, the main plant access road, pump and similar equipment locations (e.g., fire pump house), and the substation control structure (see Figure 4.4-1A); no lighting is proposed within the solar arrays. To ensure safety and security requirements are maintained, lights at the main plant access gate, doorways, and the O&M building parking area would remain in the on position, and would be light-activated to automatically turn on in the evening and shut off in the morning. Other lights (such as those proposed at the pump and equipment locations and substation, which would not need to be accessed on a frequent basis) would be normally shut off, and would be turned on only when worker activity requires.

However, facility lighting could potentially affect individual wildlife entering the illuminated portions of the site, as well as those occupying portions of the unlighted solar field immediately adjacent to the O&M area. Nighttime illumination has been shown to cause demonstrable effects on the behavioral and population ecology of organisms in natural settings. These effects generally derive from temporal and/or spatial disorientation and attraction or repulsion from the altered light environment, which in turn may affect essential behaviors such as foraging, reproduction, migration, and communication. Temporal disorientation caused by artificial lighting can lead to diurnal or crepuscular behaviors being extended into the nighttime (Rich and Longcore 2006), and some species are able to exploit this phenomenon and forage under artificial lighting conditions (Longcore and Rich 2004). For other species, however, disruption of the natural activity cycle would make them more vulnerable to predation by nocturnal predators such as owls and coyotes. Artificial nighttime illumination lighting may spatially disorient prey species normally accustomed to navigating in a dark environment, exacerbating this effect.

For species that are inherently attracted to light sources, such as some insects and birds, the proposed lighting system may result in adverse effects on a small scale. Attraction to light can lead to artificially high concentrations of insects which birds and other predators are able to exploit, leading to higher predation-related insect mortality than would occur absent the artificial light source. Occasionally, some species of birds can become disoriented and entrapped by lights at night. Once within illuminated zones at night, birds may become behaviorally “trapped” and will not leave the lighted areas (Ogden 1996). No effects on plants from nighttime illumination are anticipated. Impacts from Project lighting to potential on-site special status species would be significant, absent mitigation.

Mitigation Measure 5.7-11 (Facility Lighting) requires that Project facility lighting be designed to provide the minimum illumination needed to achieve safety and security objectives. All lighting will be directed downward and shielded to focus illumination on the desired areas only and avoid light trespass onto adjacent areas. In addition, lenses and bulbs will not extend below the shields. A lighting plan will be submitted to LACDPW for review and approval. Implementation of Mitigation Measure 5.7-11 (Facility Lighting) would minimize potential lighting effects on special-status species to less than significant levels.

Potential Impact 5.7-12: Desert Kit Fox.

As stated previously, the desert kit fox maintains no formal regulatory sensitivity designation, but "take" of this species is prohibited by CDFG regulations. If desert kit fox were present on-site during construction, injury or mortality of this species could occur due to mechanical crushing or entombment in subterranean burrows by construction equipment. If construction occurs during the spring months, when kit foxes may be rearing pups, young foxes would also be susceptible to these impacts. Long-term, operational effects of the Project would not be considered likely due to the decreased habitat available for foraging and den construction, decreased abundance or altered composition of the mammalian prey base on-site, and Project maintenance activities, which would result in a low likelihood for the species to be present on-site. Operational effects of the transmission line would not be considered likely due to the low level of maintenance activities required (i.e., maintenance would be infrequent, and would not typically involve earth-disturbance) in the presence of ongoing agricultural activities. Because the desert kit fox is not a special-status taxon, these impacts would be less than significant. However, to ensure compliance with CDFG regulations, Mitigation Measure 5.7-12 requires pre-construction clearance surveys for desert kit fox and sets forth a procedure for the evaluation and removal of desert kit fox dens from the site that is compatible with the applicable CDFG regulations.

5.7.3.2.6 Criteria 6: Would the proposed project interfere substantially with any wildlife corridor, adjacent open space linkage, or identified resources nearby and on the site?

Construction.

Facility Site. While the Project site is not within an area identified as a large-scale habitat linkage (South Coast Wildlands 2008) (refer to Figure 5.7-5), many small and medium-sized wildlife species nonetheless move within and through the site, relying on on-site habitat and the permeability of the site to satisfy biological requirements. Implementation of the proposed Project would entail the installation of chain-link fencing around the majority of the Project site (see Figure 5.7-9). This fencing would include features to allow the passage of medium-sized mammals around the entire site, with the exceptions of fencing adjacent to SR-

138 and the proposed on-site substation. Drainage A, traversing the middle of the site, would remain as an open travel route ranging from approximately 250 to 100 feet wide. In addition, habitat modifications caused by the solar PV panels could render the habitat on-site unsuitable for use by many species. The wildlife species present in the Project region vary greatly in their size and mobility, from small mammals and reptiles with home ranges a fraction the size of the Project site, to mountain lions and mule deer, species that inhabit the region's mountains and may forage over many square miles and use the Project region incidentally. These different groups of wildlife have vastly different habitat connectivity requirements, and it is therefore not reasonable to assume that installation of the proposed Project facilities would impede the movement of all species equally. Additionally, different size classes of terrestrial wildlife will have different capabilities of moving through the proposed fencing. Small mammals and reptiles will not be impeded at all, medium sized animals will only be able to cross at those portions of the fence with wildlife-permeable features, and large mammals could be significantly impeded. To address these realities, this section evaluates impacts of the proposed Project on movement of three wildlife groups: small mammals and reptiles, such as squirrels and lizards; medium-sized wildlife, such as coyote and black-tailed jackrabbits; and large, high-mobility species such as deer and mountain lions.

Impacts on Movement of Small Mammals and Reptiles. Small mammals and reptiles generally have relatively small home ranges and limited dispersal capabilities. Because small mammals and reptiles occupy home ranges small enough that they are likely to be located either wholly inside or wholly outside the Project site, the proposed Project is unlikely to substantially impede the movement of these species. Impacts of the proposed Project on the movement of small mammals and reptiles would therefore be less than significant. This impact is described in greater detail in Section 5.6.1 of the Biota Report, presented in Appendix E.

Potential Impact 5.7-13: Impacts on movement of medium-sized wildlife.

The home ranges of medium-sized wildlife are large enough that travel off of the site could very possibly be a requirement, yet small enough that the Project site could be relied on substantially to partly fulfill basic biological needs including foraging, searching for mates, and potentially short-range dispersal. Due to the larger home range sizes occupied by these species, it is likely that some medium-sized wildlife individuals in the area utilize habitat both within and outside the Project site. Therefore, the potential exists for Project components to disrupt movement of these individuals within their home ranges. Following implementation of the proposed Project, the Project site would remain passable to medium-sized wildlife due to the incorporation of wildlife-permeable features in the perimeter fencing and the presence of a wildlife travel route along Drainage A. This movement area would range from approximately 100 to 250 feet in width, and would consist of the drainage

channel itself as well as a 100-foot buffer on either side of the channel bank along the jurisdictional length of the channel. Beyond the jurisdictional length, the route would narrow down to 100 feet in width, ending along the north-east boundary of the Project site. The perimeter fencing would not be permeable to medium-sized wildlife along SR-138, in order to reduce mortality due to vehicle collisions, nor around the on-site substation, in order to keep wildlife away from the high-voltage equipment. As it is reasonably certain that medium-sized wildlife currently move through the Project site and across the site boundary, and because implementation of the Project would not substantially decrease their ability to continue doing so, impacts of the proposed Project on medium-sized wildlife would be less than significant.

Impacts on Movement of Large Wildlife Species. For the largest wildlife, such as mountain lions and species of similar size and mobility, the Project site would likely represent only a small portion of the home range. Although not detected on-site during biological field investigations of the Project site, large, highly mobile mammals such as mountain lions and mule deer occur south of the Project region and may occasionally use the site as a component of the larger habitat mosaic required by these species. However, evidence suggests that large mammals preferentially travel along the periphery of the Antelope Valley, utilizing habitat linkages in the Tehachapi, Sierra Madre, Castaic, and San Gabriel mountain ranges, rather than along the valley floor (South Coast Wildlands 2008, CDFG 2008b). Because of the much larger territories occupied and higher mobility of these species, large mammals would be able to skirt the site and travel outside the site perimeter much more easily than medium-sized wildlife. The Project site represents a much smaller portion of the home range for large mammals, and loss of access to resources within the site would not necessarily require these species to change their foraging or dispersal patterns. In addition, due to the lower level of dependence on the site and preference for sheltered movement routes exhibited by these species, the probability of large mammals utilizing the site as a movement corridor is relatively low. Impacts of the proposed Project on movement of large mammals would therefore be less than significant. This impact is described in greater detail in Section 5.6.3 of the Biota Report, presented in Appendix E.

Off-site Transmission Line. The proposed transmission line route is not located within an area identified as a large-scale habitat linkage (South Coast Wildlands 2008) (refer to Figure 5.7-5). Because the extent of disturbance along the route would be sporadic (36 separate off-site transmission pole locations would be disturbed, each separated by approximately 600–700 feet of unimpacted habitat), and relatively minor (only 5 acres temporarily impacted and less than 1 acre permanently impacted for the entire transmission line, mostly in agricultural and disturbed areas), the effects of this Project component on the connectivity of the vicinity would be minor. The proposed transmission line route is located along or adjacent to 170th Street West, and the presence of this road may limit wildlife movement to some extent under existing conditions. However, construction of the proposed

transmission line would not lessen the permeability of this area for travelling wildlife. Impacts of the transmission line on wildlife movement would be less than significant. This impact is described in greater detail in Section 5.6 the Biota Report, presented in Appendix E.

Operation.

Facility Site. Facility operations are discussed in Section 4.4.7. A solar PV power generating facility operates with minimal exhausts, waste products, or activity. There would be 16 full-time operations crewmembers on site, which represents a small presence compared to the 2,100 acre extent of the site. Maintenance activities would be isolated and small scale, so the level of disturbance over the site would be very low. Wildlife would be free to move through the central travel route and across the majority of the Project site without significant disturbance by the presence of work crews and activity. Thus, the impacts to movement of wildlife across the Project site resulting from operational activities would be less than significant.

Off-site Transmission Line. The operation of the transmission line would not result in any further impacts to wildlife movement within the transmission line route. The presence of transmission poles approximately 700 feet apart, and of overhead lines, would not deter movement of wildlife across the route. Maintenance activities over the life of the Project would typically consist of annual visual inspections and periodic washing of insulators at pole locations. These activities would be infrequent and transient in nature.

The impacts to wildlife movement by transmission line operations would, therefore, be less than significant.

5.7.3.2.7 Criteria 7: Would the proposed Project adversely affect SEA resources, including linkages to other SEAs, or undisturbed habitats?

Construction.

Facility Site. The Project site is not located within an SEA boundary; therefore, the Project is not expected to cause significant direct impacts to SEA resources. The Project site is adjacent to 2 SEA #60 areas along portions of the northern and northeast site boundary areas. Construction of the Project site would result in fugitive dust, temporary noise, and increased human presence, which would potentially impact adjacent SEA #60 areas. However, implementation of Mitigation Measure 5.6-2 (Develop and Implement Fugitive Dust Emission Control Plan) would reduce the impact of fugitive dust on the adjacent SEA areas. The Project would also implement Mitigation Measure 5.18-1 to reduce construction equipment noise. Additionally, construction work would be temporary and transient, such that the effects of dust, noise, and human presence would occur over a short timeframe. As a

result, construction of the facility would result in less than significant impacts to adjacent SEA resources.

Off-site Transmission Line. The proposed transmission line route is not located within an SEA boundary; hence, the transmission line is not expected to result in significant direct impacts to SEA resources.

The proposed transmission line route is adjacent to SEA #60 for approximately 0.4 mile along 170th Street West. Transmission pole construction could introduce areas with non-native vegetation, which if allowed to persist, may invade adjacent SEAs. However, these effects would be minimized through implementation of Mitigation Measure 5.7-1, Habitat Enhancement and Vegetation Management Plan, which requires revegetation of appropriate native plant communities on all areas of temporary ground disturbance along the transmission line route. As a result, construction of the transmission line would result in less than significant impacts to adjacent SEA resources.

Operation.

Facility Site. As mentioned previously, the Project site is not located within an SEA boundary; therefore, the Project is not expected to cause significant direct impacts to SEA resources.

A solar PV power generating facility operates with minimal exhausts, waste products, or activity. The minimum setback between Project infrastructure and the SEA boundary is approximately 100 feet as shown on Figure 4.4-1A (Facility Site Plan), which would buffer the adjacent SEA from Project related disturbance. The use of soil tackifiers on the perimeter fire breaks would decrease the amount of fugitive dust being generated on the site. After the spring growing season, non fire-break areas would maintain a low height of grass and forbs to stabilize the soil. Wildlife-permeable fencing would allow wildlife movement between the Project site and the adjacent SEAs. Additionally, the existing configuration of SEA #60 consists of nine (9) generally discontinuous areas. As a result of the existing fragmented nature of SEA #60, the Project site would not disrupt linkages between the SEAs. Project related lighting around the O&M area is approximately 2,000 feet away from the SEA boundary and implementation of Mitigation Measure 5.7-11 (Facility Lighting) would minimize light trespass. These design measures and mitigation measures would render potential operational indirect impacts to SEA #60 less than significant.

Off-site Transmission Line. As stated previously, the proposed transmission line route is not located within an SEA boundary; hence, the transmission line is not expected to result in significant direct impacts to SEA resources.

Operation of the transmission line is generally a passive activity, and would not actively generate substantial air emissions or noise. Maintenance activities, such as brush clearing (as required for fire safety) has the potential to introduce non-native vegetation, which if allowed to persist, may invade adjacent SEAs. However, these potential occurrences would be minimized through implementation of Mitigation Measure 5.7-1, Habitat Enhancement and Vegetation Management Plan, which requires for revegetation of appropriate native plant communities on all areas of temporary ground disturbance along the transmission line route. Due to the small transmission pole footprints (approximately 50 square feet each), the dispersed nature of the poles, and the existing fragmented configuration of SEA #60, the transmission line would not disrupt linkages between the SEAs. As a result, operation of the transmission line would result in less than significant impacts to adjacent SEA resources north of the Project site in Los Angeles County.

5.7.3.2.8 Indirect Impacts.

Facility Site. In addition to the impacts identified above, the proposed Project would also have the potential to result in adverse indirect impacts, which would occur either off-site or later in time, but which would nonetheless be reasonably certain to occur. Specifically, the Project would have the potential to emit fugitive dust during construction which could adversely affect biological resources in adjacent, off-site locations.

Potential Impact 5.7-14: Impacts from Fugitive Dust.

As stated previously, the proposed Project would involve ground disturbance within existing on-site habitats. This practice would loosen the topsoil, and would remove the vegetation that plays a large role in stabilizing the soils on-site. Due to the high winds that are prevalent in the Antelope Valley, the lack of topsoil stability caused by the proposed ground disturbance could potentially result in fugitive dust which would adversely affect plants and wildlife on-site and in adjacent areas. Because this phenomenon could affect sensitive habitats, special-status species, and unique native trees, the impacts related to fugitive dust emissions from the Project site would be potentially significant, absent mitigation. Mitigation measures presented for air quality in Section 5.6.5, along with Mitigation Measure 5.6-2 (Develop and Implement Fugitive Dust Emission Control Plan), would substantially reduce the amount of fugitive dust generated by construction and operations within the Project site; thus, this impact would be less than significant with implementation of the proposed mitigation measures.

Potential Impact 5.7-15: Indirect Project Lighting Effects.

Artificial sources of nighttime illumination can have adverse effects on native wildlife species, as described above. The proposed illuminated areas at the O&M area, parking lot, and along the site access road are nearly 0.5 mile from the northern site boundary and

adjacent SEA #60 at the closest point. Light spillover into surrounding properties would not be considered likely, and edge effects associated with nighttime illumination on areas outside the Project site would be less than significant. However, implementation of Mitigation Measure 5.7-11 (Facility Lighting) would further reduce this impact.

Off-site Transmission Line. There are no anticipated indirect impacts to biological resources associated with the proposed off-site transmission line other than those discussed previously under operational impacts. The transmission line design minimizes the potential for shock or electrocution of birds and discourages nesting and perching on the poles.

5.7.4 Cumulative Impacts

The past, proposed, and reasonably foreseeable future projects identified in the vicinity of the Project site would have the potential to adversely affect biological resources, and the effects of these projects could in some instances be expected to compound or worsen the impacts of the proposed Project. For those projects that are linear in nature, such as transportation routes and proposed electrical transmission lines, impacts would generally be minor in terms of acreage, but would occur over a large distance. For development projects within fixed sites, such as electrical generating facilities and proposed urban expansions, the acreage impacted would generally be larger, but direct impacts would usually be limited to the proposed site and immediate surroundings.

5.7.4.1 Impacts to Natural Habitats

The proposed Project would have potentially significant on-site impacts on biological resources related to the conversion of substantial natural habitat areas to a developed condition. As lost habitat cannot be replaced, these impacts would remain significant after incorporation of all feasible on-site mitigation measures. However, with implementation of the proposed off-site mitigation measures, Project impacts would be reduced to less than significant levels. Development trends in the Antelope Valley, and the corresponding habitat loss that occurs as a result, have not been steady over time (Galloway et al. 1998). Rather, rates of development have risen and fallen in response to economic drivers, including real estate prices and the overall vitality of the region. Rates of proposed development in the Antelope Valley have generally slowed since the late 1980s, but some development projects are nevertheless proposed, as detailed in Table 4.6-1 and displayed on Figure 4.6-1. However, because many of these projects are currently in the early planning stages and have not yet been approved, substantial details regarding the impacts of such projects on the environment are not yet known. Although the exact acreage to be impacted by these projects is not known, it is anticipated that all of the proposed and reasonably foreseeable future projects identified within the Project vicinity would involve some level of development within natural habitats. However, the floor of the Antelope Valley is fairly homogeneous

with regard to the types of vegetation present, and the habitats disturbed by proposed and reasonably foreseeable future projects are generally abundant throughout the valley. Thus, although the proposed Project would represent an incremental reduction in the available natural habitat within the Antelope Valley, the cumulative impact of all proposed and reasonably foreseeable future projects on general habitat in the Valley would be less than significant.

5.7.4.2 Impacts to Sensitive Natural Communities

As discussed in Section 5.7.3.2.3, the proposed Project would result in incremental impacts to two sensitive natural communities: Joshua tree woodlands and wildflower fields. The proposed Project would involve the placement of 4 transmission line poles within mapped Joshua tree woodland habitat in the public road ROW on the east side of 170th Street West. This impact was determined to be less than significant at the project level due to the small acreage (less than one acre total) to be disturbed, and the fact that no Joshua trees would be impacted. Due to these factors, the Project's minor effects on this vegetation community would not contribute considerably to a significant impact on Joshua tree woodlands.

The proposed Project would remove and permanently alter a substantial acreage of wildflower field habitat on-site. Because publicly available environmental documentation indicates that currently proposed projects in the vicinity would also impact this sensitive vegetation community, the potential exists for the Project's effects to worsen or compound the impacts of other proposals. Given this, the Project's incremental impact on wildflower fields has potential to contribute considerably to cumulative impacts on this resource. The Project's impact on wildflower fields would be reduced by Project-level mitigation measures requiring the unimpacted portion of the on-site wildflower field to be enhanced and monitored. It is also expected that following initial site clearing of rabbitbrush scrub habitat areas, the cleared areas would be converted to annual grass and forb dominated habitats that may include wildflower fields. Additionally, the proposed off-site mitigation which includes consideration of Project impacts to wildflower field habitat would reduce Project impacts to a less than significant level. It is anticipated that the incorporation of similar measures into other proposed and reasonably foreseeable future projects would further reduce cumulative impacts on this resource. With mitigation, Project impacts are not anticipated to be cumulatively significant.

5.7.4.3 Impacts on Unique Native Trees

The proposed Project would require the removal of an existing non-producing pistachio orchard (abandoned) and 12 ornamental trees. Because the pistachio orchard and ornamental trees to be removed were established by humans, and because these species do not occur naturally in the region, they are not "unique native trees" for purposes of this analysis. The

proposed Project would not contribute considerably to any cumulatively significant impacts on unique native trees.

5.7.4.4 Impacts on Special-status Species

The proposed Project would have significant impacts on one sensitive reptile and several special-status bird species, absent mitigation. Impacts associated with injury or mortality of individual birds would be substantially lessened by the mitigation measures recommended in this Draft EIR, and would be unlikely to compound or worsen effects of other projects in the region. With implementation of the proposed off-site mitigation measures, impacts on special-status species associated with loss of habitat would be less than significant at the project level. Because many of the proposed and reasonably foreseeable future projects in the Antelope Valley are currently in the early planning stages and have not yet been approved, substantial details regarding the impacts of such projects on the environment are not yet known. Although the exact acreage to be impacted by these projects is not known, it is anticipated that all of the proposed and reasonably foreseeable future projects identified within the Project vicinity would involve some level of development within natural habitats. However, the floor of the Antelope Valley is fairly homogeneous with regard to the types of vegetation present, and the habitats disturbed by proposed and reasonably foreseeable future projects are generally abundant throughout the valley. The common and special-status species occupying sites proposed for development are also expected to occupy similar habitats elsewhere in the Antelope Valley, and suitable foraging habitats, such as rabbitbrush and California annual grasslands, would remain abundant in the region despite the current and future development proposals. Thus, although the proposed Project would represent an incremental reduction (1,937 acres permanently removed or modified) in suitable foraging habitats for special-status species within the Antelope Valley, the cumulative impact of all proposed and reasonably foreseeable future projects on such habitats would be less than significant.

5.7.4.5 Impacts to Wildlife Movement

As described under Potential Impact 5.7-12 (Impacts on movement of medium-sized wildlife), the proposed Project would not significantly impede the movement of medium-sized mammals in the vicinity, with mitigation and inclusion of the major wildlife movement corridor and wildlife-permeable fencing around key portions of the site perimeter. Because the home ranges of these species are small compared to the overall size of the Antelope Valley, it is highly unlikely that any wildlife individual would be affected by more than one Project. The impacts of the proposed Project would not be expected to compound or worsen the impacts of other projects, thus the Project's incremental effect would not be considerable or result in a cumulatively significant impact on wildlife movement.

5.7.4.6 Impacts to Significant Ecological Areas

As stated in Section 5.7.3.2.7, the proposed Project would involve development of solar generating arrays and a transmission line adjacent to portions of SEA #60, but impacts would not be significant at the Project level due to design considerations that would minimize adverse effects, and because no Joshua trees would be removed as a result of the Project. Because no proposed or reasonably foreseeable future projects are located within or adjacent to SEA #60, the effects of the proposed Project on this SEA would not be expected to be worsened or compounded by the effects of other projects. Therefore, the proposed Project would not contribute considerably to a cumulatively significant impact on biological resources within SEA #60.

5.7.4.7 Impacts on Mojave Desert Ecoregion/Biome

The AV Solar Ranch One Project site is largely comprised of rabbitbrush scrub (approximately 1,452 acres), followed by California annual grasslands (approximately 368 acres), and wildflower fields (approximately 236 acres). The off-site transmission line traverses approximately 0.25 mile of Joshua tree woodland. The Project site is located within the western margin of the Mojave Desert, and as shown with the existing habitat types on the Project site, the site contains a mix of non-desert habitat types including California grasslands, and disturbance-maintained communities (i.e., rabbitbrush scrub, orchard, agricultural, ruderal, etc.), which are not characteristic of Mojave ecoregion habitat. Additionally, the majority of the site has been previously used for and currently displays evidence of agricultural production. The Project site does not exhibit the habitat characteristics of the Mojave Desert ecoregion to the east, and does not support State or Federal endangered species, thus the potential for significant cumulative effects with other potential solar projects further to the east is diminished and cumulative impacts would be less than significant.

Based on biological surveys, literature review, and consultation with USFWS and CDFG, the Project site does not contain and is not known to contain desert tortoise, suitable desert tortoise habitat, desert bighorn sheep, suitable desert bighorn sheep habitat, or migration routes or habitat connectivity areas for the desert tortoise or desert bighorn sheep. The nearest potential desert bighorn sheep habitat is located more than 10 miles from the Project site, in mountainous areas generally well east of the Project area. As a result, the proposed AV Solar Ranch One Project would be highly unlikely to have any project-specific or cumulative impacts on these species. Additionally, based on biological surveys, literature review, and consultation with USFWS and CDFG, the Project site would not be expected to have any project-specific or cumulative impacts on any other federal or state listed threatened or endangered species. Refer to Section 5.8 of the Biota Report in Appendix E for more information.

5.7.5 Mitigation Measures

Multiple potentially significant impacts to biological resources have been identified (see Section 5.7.3 above). The following feasible mitigation measures are proposed to avoid or substantially lessen these impacts, as required by the CEQA statute and Guidelines.

Mitigation Measure (MM) 5.7-1: Habitat Enhancement and Vegetation Management Plan. Prior to issuance of a grading permit, the Project Applicant shall develop a Habitat Enhancement and Vegetation Management Plan (HEVMP) to compensate for impacts to existing vegetation communities by preserving and enhancing the remaining vegetation within the Project site. The HEVMP shall also provide measures to ensure minimal impacts to habitat along the off-site transmission line. In areas suitable for on-site mitigation, the HEVMP shall identify appropriate mitigation objectives, standards, and monitoring/reporting requirements to enhance habitat such that the resulting habitat values would be greater than those lost as a result of project implementation. These habitat values would include nesting and foraging habitat for songbirds, foraging habitat for raptors and owls, and high diversity and abundance of native forbs/wildflowers. In areas rendered unsuitable for mitigation due to proposed development, the HEVMP shall identify appropriate restrictions, such as limiting noxious weeds, but shall not impose mitigation standards. The HEVMP shall be prepared by a qualified restoration biologist experienced with desert habitat restoration, and shall specify appropriate revegetation and management practices for the following portions of the Project site to the satisfaction of LACDRP:

- Mitigation and Avoidance Areas (refer to Figure 5.7-11 of this DEIR):

    1. Drainage A, a 100-foot setback, and the associated wildlife travel route (47.1 acres)
    2. Drainage B and a 20-foot buffer (approximately 6 acres)
    3. The southernmost portion of the Project site along Drainage C, where no development is proposed (45 acres)
    4. The Joshua tree recruitment area (8.6 acres, including buffer)

- Areas of Modified/Impacted Habitat (Unsuitable for Mitigation):

    1. All portions of the site within the fire breaks (217 acres)
    2. All interior portions of the site within the proposed solar arrays, excluding locations of proposed infiltration basins and fire breaks (1,336 acres)
    3. All portions of the site to be occupied by proposed infiltration basins (253 acres)

In general, for each of the locations enumerated above, the HEVMP shall specify, at a minimum, the following (specific details vary depending on location, and are described in the paragraphs that follow):

- The location and extent of any on-site enhancement/revegetation areas, to be depicted graphically on an aerial photograph or schematic of appropriate scale
- The quantity and species of plants to be seeded (if necessary), including the locations where each type of vegetation would be created
- A schedule and action plan to maintain and monitor the enhancement/revegetation areas
- A list of success criteria (e.g., growth, plant cover, plant/wildlife diversity) by which to measure success of the enhancement/revegetation effort
- Contingency and/or adaptive management measures in the event that enhancement/ revegetation efforts are not successful

In addition, the standards and practices set forth in the HEVMP for each area shall conform to the requirements stated below:

- Within the setback zones surrounding Drainage A, Drainage B, and Drainage C the HEVMP shall provide for 101 acres of on-site mitigation, as well as 6 acres of additional avoidance area (due to its small and isolated nature, the 6-acre area surrounding Drainage B is not included as suitable mitigation land, but would nonetheless be avoided), and shall ensure the following:

    1. Drainages A, B, and C, including adjacent buffer areas shown on Figures 5.7-7 and 5.7-11, as well as the local wildlife travel route associated with Drainage A, shall be set aside, preserved, and enhanced, and no Project-related disturbance shall be permitted in these areas.
    2. Any anthropogenic discontinuities in the existing vegetation (unofficial roads, dump sites, etc.) within the ephemeral drainage setbacks shall be remedied, and such areas shall be seeded with native plant species characteristic of the surrounding vegetation.
    3. Vegetative cover in herbaceous communities (grasslands, wildflower fields) shall exceed 95 percent; of this, non-native forbs shall not exceed five percent cover. Bare ground shall not exceed five percent excluding bare ground located within the channel bottom of an ephemeral drainage or bare ground where there is clear evidence that the bare ground was the result of mammal activity (burrows, wildlife trails, etc.).
    4. Vegetative cover in shrub-dominated communities (desert saltbush scrub, rabbitbrush scrub) shall exceed 90 percent, and shrub cover shall exceed 30 percent. Non-native

forbs and shrubs combined shall not exceed five percent cover, and bare ground shall not exceed five percent excluding bare ground located within the channel bottom of an ephemeral drainage or bare ground where there is clear evidence that the bare ground was caused by mammal activity (burrows, wildlife trails, etc.).

5. In Drainages A and C and the adjacent setback/buffer areas as shown on Figure 5.7-7, vegetation in the area shall remain suitable for foraging by burrowing owls and other grassland bird species. Habitat enhancement/revegetation shall be implemented if necessary to ensure continued suitability.
6. Joshua trees and junipers shall be planted, to improve habitat suitability for sensitive bird species and increase the likelihood that these areas will be occupied by such special-status species as loggerhead shrikes and long-eared owls.

- Within the Joshua tree recruitment area, the HEVMP shall provide 8.6 acres of mitigation land, and shall ensure the following:

1. The Joshua tree recruitment area and a 50-foot buffer from the Joshua tree seedlings shall be set aside and preserved, and no Project-related disturbance shall be permitted in this area.
2. Any anthropogenic discontinuities in the existing vegetation (other than the County roadbed of West Avenue C, which passes through this area) shall be remedied, and such areas shall be seeded with native plant species characteristic of the surrounding vegetation.
3. Measures shall be implemented to encourage the continued recruitment of Joshua trees into this area. Such measures may include standards for herbaceous and shrub cover, removal of non-native plants and wildlife, and others.
4. To provide nesting and perching habitat and increase structural diversity within restoration areas, native shrub species associated with Joshua tree woodland (including Mojave yucca, sage, box-thorn, and buckwheat, as noted in the County General Plan) shall be included in the planting palette.

- Within the proposed fire breaks, no suitable on-site mitigation opportunities exist. However, the HEVMP shall ensure the following:

1. To prevent the potential spread of fire onto the Project site, the proposed fire breaks shall be maintained clear of vegetative cover through mechanical clearing and selective herbicide use.
2. If herbicides are used as approved by LACDRP to control vegetation, they shall be applied by a qualified individual and in a manner consistent with the product labeling.

Under no circumstances shall herbicides be allowed to pass into any ephemeral drainage.

3. Under no circumstances shall species identified by the California Invasive Plant Council (Cal-IPC) as invasive weeds be allowed to thrive in the fire breaks. Cover of these species, collectively, shall be maintained at or below five percent.

- Within all interior portions of the site within and adjacent to the proposed solar arrays, excluding locations of proposed infiltration basins, no suitable on-site mitigation opportunities would exist. However, the HEVMP shall ensure the following:

  1. To control fugitive dust, vegetative cover of grasses and forbs within the proposed solar arrays shall be maximized.
  2. Vegetation seeded in these areas shall be comprised of low-growing communities such as native grasslands and wildflower fields, to minimize the effects of vegetation management practices on the revegetated areas. Shrub species shall not be used, as these species would be unable to survive continued vegetation trimming.
  3. Under no circumstances shall species identified by the Cal-IPC as invasive weeds be used in the revegetation efforts.
  4. To promote the growth of local, native plant species, the top 2-6 inches of topsoil removed during Project-related ground clearing shall be stockpiled and spread across disturbance zones after completion of construction in the area.
  5. To ensure that a seed supply is maintained to perpetuate on-site vegetation (e.g., annual grasses and wildflowers), vegetation shall be allowed to grow to a maximum height of 18 inches between February 1 and approximately mid-April prior to mowing to a height of 6 inches (or less) by May 1 (through the following January) as required by the LACFD.
  6. Herbicides shall be approved for use by the County, and herbicide application shall be performed by trained personnel who can identify the species to be treated. If herbicide is applied, it shall be applied during dry and low wind conditions in order to prevent herbicide drift into non-target areas.

- Within the proposed infiltration basins, no suitable on-site mitigation opportunities exist. However, the HEVMP shall ensure the following:

  1. If herbicides are used as approved by LACDRP to control vegetation (i.e., non-native vegetation), they shall be applied by a qualified individual and in a manner consistent with the product labeling. Under no circumstances shall herbicides be allowed to pass into any ephemeral drainage.

2. Under no circumstances shall species identified by Cal-IPC as invasive weeds be allowed to thrive in the infiltration basins. Cover of these species, collectively, shall be maintained at or below five percent.

- Within all portions of the transmission line route to be impacted during installation of transmission line poles and temporary stringing sites, the HEVMP shall ensure the following:

1. Under no circumstances shall ground disturbance occur within 25 feet of an existing Joshua tree. In applicable areas, Joshua tree avoidance zones shall be delineated with high-visibility construction fencing.
2. All areas of temporary ground disturbance shall be revegetated with appropriate plant communities native to the Project region, such as native grasslands, wildflower fields, desert scrub, rabbitbrush scrub, desert saltbush scrub, and Joshua tree woodland.
3. Where impacts would occur in existing agricultural lands outside the Applicant's ownership, it is presumed that agricultural practices would resume after completion of construction. Therefore, revegetation shall not be required in these areas.
4. If earthwork is proposed in areas where native vegetation exists, the top 2-6 inches of topsoil removed during Project-related ground clearing shall be stockpiled and spread across disturbance zones after completion of construction in the area.
5. Under no circumstances shall species identified by the Cal-IPC as invasive weeds be used in the revegetation efforts.
6. The HEVMP shall include provisions to minimize the effects of transmission line maintenance on biological resources, including a requirement that no Joshua trees shall be removed during such maintenance.

In addition to the location-specific requirements set forth above, the HEVMP shall also ensure that the following standards are met or exceeded within the Project site as a whole:

1. The HEVMP shall identify appropriate locations for creation of rabbitbrush scrub, California annual grassland, and wildflower fields, the three most abundant existing natural communities on-site, within avoided portions of the Project site. In total, 101 acres of on-site mitigation shall be provided.
2. Performance monitoring of the on-site enhancement and revegetation areas shall be monitored approximately quarterly, in January, April, June, and November, and a report detailing the monitoring results shall be submitted to the LACDRP annually. Monitoring and reporting shall be required for a period of five years and until such time as performance standards are achieved. The HEVMP shall contain contingency measures

identifying corrective actions required in the event that the performance standards are not met.

3. All percent cover standards shall be evaluated during the spring biomass peak.
4. Anti-coagulant rodenticides shall not be used within the Project site or along the proposed transmission line route.

The HEVMP shall be submitted to the LACDRP for review and approval prior to issuance of a grading permit.

MM 5.7-2: Off-site Mitigation for Loss of Habitat. Within one year of Project approval or prior to the installation of 50 MW of photovoltaic solar panels, the Applicant shall provide a minimum of 450 acres of off-site mitigation land to be restored, enhanced, and maintained according to the requirements of this mitigation measure, and shall be preserved as open space in perpetuity. Within 45 days of acquiring the mitigation land(s), the Applicant shall record a permanent deed restriction on the mitigation land(s) to be preserved as open space. The deed restriction language shall be submitted to LACDRP for review and approval prior to recordation. Alternatively, should a conservation easement on the mitigation land(s) be offered, the permanent conservation easement(s) shall be recorded to the satisfaction of LACDRP.

The off-site mitigation land shall not exceed 10 separate fragments and shall be acquired adjacent to existing public lands, or within or adjacent to SEAs within the Antelope Valley or surrounding foothills. At least 225 acres of the mitigation land shall be acquired in the vicinity of the Antelope Valley California Poppy Reserve, including lands in or adjacent to SEA #57, or lands connecting the Poppy Reserve to the Angeles National Forest. An additional 75 acres shall be acquired within this same area, or in or adjacent to SEA #60, or adjacent to the Arthur B. Ripley Woodland State Park.

The Applicant shall establish a fund sufficient for the restoration, enhancement, and maintenance of the mitigation land(s) until such time when the mitigation land(s) become self-sustained and meet the requirements of this mitigation measure. The fund shall be established within 90 days of mitigation land(s) acquisition in an amount acceptable to the LACDRP.

The selected off-site mitigation lands shall contain vegetation communities similar to those found within the Project site, including rabbitbrush scrub, annual grassland, and wildflower fields. Although the proposed Project would not significantly impact Joshua tree woodland habitat, lands containing this vegetation community shall also be considered desirable due to the County's concern over the continuing loss and degradation of Joshua tree woodlands. The selected lands shall comply with the following mitigation requirements:

1. The subject property shall be located within the greater Project vicinity, generally defined to include the Antelope Valley and surrounding foothills.
2. The subject property(s) shall contain a minimum of 450 acres of land, which shall be either comprised of vegetation communities characteristic of the Antelope Valley (rabbitbrush scrub, annual grassland, wildflower fields, and/or Joshua tree woodlands) or be reasonably capable of being enhanced and converted to such habitat through the use of maintenance and management practices such that the resulting habitat values would be greater than those lost as a result of Project implementation.
3. The subject property(s) shall either contain a minimum of 224.5 acres of wildflower field, or shall be reasonably capable of being enhanced and converted to this vegetation through maintenance and management practices.
4. The subject property(s) shall provide at least 39 acres of contiguous suitable foraging habitat for the burrowing owl, including presence of suitable burrows. If suitable natural burrows are not present within the subject property, artificial burrows shall be constructed in accordance with California Burrowing Owl Consortium (1993) guidelines.
5. The subject property(s) shall contain a minimum of 450 acres of suitable foraging habitat for grassland/scrubland bird species occurring in the Antelope Valley.
6. The subject property(s) shall contain habitat suitable for the Blainville's horned lizard. Within the mitigation site, suitable locations shall be identified for relocation of horned lizards captured and removed from the Project site pursuant to Mitigation Measure 5.7-7. Generally, it is presumed that the wildflower field areas required by item (3) above will be suitable for this species.
7. Under no circumstances shall species identified by the Cal-IPC as invasive weeds be used in revegetation efforts.
8. The subject property(s) shall be maintained such that non-native forbs shall not exceed 5 percent of the vegetative cover.

Within 60 days of recordation of the permanent deed restriction(s) or conservation easement(s), a Restoration, Enhancement, and Maintenance Plan for the off-site mitigation land(s) shall be submitted to LACDRP for review and approval. The plan shall include the restoration, enhancement, and maintenance requirements for each mitigation area, based on the characteristics of the mitigation land and the mitigation requirements described above. The Restoration, Enhancement, and Maintenance Plan shall also describe the performance standards for determining when the mitigation requirements for the lands have been met.

In addition to meeting the requirements detailed above, the following desirable factors shall also be considered when selecting off-site mitigation property(s):

1. Lands located between blocks of protected habitat are desirable locations for off-site mitigation, as protecting these areas can ensure that essential habitat connections remain in perpetuity.
2. Lands containing Joshua tree woodland habitat are desirable locations for off-site mitigation, due to the continuing loss and degradation of this resource.
3. Lands containing junipers are also desirable locations for off-site mitigation, due to the nesting habitat they may provide for some special-status bird species.
4. Lands containing important landscape features, sensitive habitats, or listed species are desirable locations for off-site mitigation, due to the sensitivity of these resources and the general understanding that such elements are indicative of high biological value.

MM 5.7-3: Biological Restrictions for Dust Suppression. Where construction activities are proposed within 100 feet of mapped Joshua tree woodland vegetation or the Joshua tree recruitment area, a screening fence (i.e., a 6-foot-high chain link fence with green fabric up to a height of 5 feet) shall be installed to protect locations where these sensitive resources may be present to the satisfaction of LACDRP. In addition, dust abatement within 100 feet of these areas shall be achieved by water or by chemical dust suppression if authorized by the County and CDFG.

MM 5.7-4: Nesting Bird Surveys Prior to Mowing. Should mowing for vegetation management purposes occur during the nesting/breeding season of native bird species potentially nesting on the site (typically February through August in the Project region, or as determined by a qualified biologist), the Applicant shall have weekly nesting bird surveys conducted. These surveys shall be conducted by a qualified biologist, shall commence within 30 days prior to any mowing, and shall be conducted to determine whether any active nests of special-status bird species, or of any bird species protected by the Migratory Bird Treaty Act or the California Fish and Game Code, are present in the disturbance zone or within 300 feet (500 feet for raptors) of the area to be disturbed. The surveys shall occur on a weekly basis, with the last survey being conducted no more than seven days prior to initiation of mowing activities. If mowing is delayed, then additional surveys shall be conducted such that no more than seven days would have elapsed between the survey and mowing. The Applicant or contractor shall provide the biologist with plans detailing the extent of proposed mowing prior to the survey effort.

If active nests are found, mowing within 300 feet (500 feet for raptors) of the nest shall be postponed or halted, at the discretion of the biologist, until the nest is vacated and juveniles have fledged, as determined by the biologist, and there is no evidence of a second attempt at nesting. Limits of mowing to avoid an active nest shall be established in the field with highly visible construction fencing, and solar plant personnel shall be instructed on the sensitivity of nest areas. The results of the surveys, including graphics showing the locations of any nests

detected, and any avoidance measures implemented, shall be submitted to the LACDRP and CDFG within 14 days of completion of the surveys to document compliance with applicable state and federal laws pertaining to the protection of native birds. Nesting bird surveys shall be conducted in each of the first five years after Project development. At the end of this period, the results of the first five years of surveys shall be submitted to the LACDRP and CDFG. After submittal of the first five-year survey results, the County of Los Angeles, under consultation with CDFG, shall determine whether or not the nesting bird surveys shall continue.

MM 5.7-5: Biological Monitor. Prior to grading, a qualified biologist shall be retained by the Applicant as the biological monitor subject to the approval of the County of Los Angeles. The biological monitor shall ensure that impacts to biological resources are avoided or minimized to the fullest extent possible. During earth moving activities, the biological monitor shall be present to relocate any vertebrate species that may come into harm's way to undisturbed areas of suitable habitat using appropriate methods that would not injure the wildlife. The biological monitor shall have the authority to stop specific grading or construction activities if violations of mitigation measures or any local, state, or federal laws are suspected.

MM 5.7-6: Worker Environmental Education Program. A Worker Environmental Education Program shall be developed for construction crews by a qualified biologist(s) provided by the Applicant. Training materials and briefings shall include but not be limited to: discussion of the value and identification of special-status species, including the burrowing owl and desert tortoise, review of sensitive species likely to occur within the construction area, the Migratory Bird Treaty Act and the consequences of non-compliance with this act, a contact person in the event of the discovery of dead or injured wildlife, and a review of mitigation requirements. The training sessions shall be conducted by a qualified biologist or other individual approved by the biologist. Maps showing the location of special-status wildlife or other construction limitations shall be provided to the environmental monitors and construction crews prior to construction activities. As part of the environmental training, contractors and heavy equipment operators shall be provided with photographs or illustrations of expected special-status wildlife species so they will able to identify them, and avoid harming them during construction.

MM 5.7-7: Blainville's Horned Lizard Capture and Relocation. Prior to the initiation of ground clearing activities, capture and relocation efforts shall be conducted for the Blainville's horned lizard to the satisfaction of LACDRP. Trapping shall be conducted by a County-approved biologist possessing proper scientific collection and handling permits, and shall include the following steps:

- Prior to initiating the capture and relocation effort, a suitable receptor location shall be identified to receive relocated horned lizards. The receptor locations shall contain suitable habitat for this species, including open, shrub-dominated vegetation. The 45-acre avoidance area near the southern edge of the Project site likely constitutes a suitable on-site receptor location.
- The capture and relocation effort shall take place during the spring season (April through May) preceding commencement of ground disturbance activities, when lizards are at peak activity. All areas proposed for temporary or permanent ground disturbance shall be surveyed for the Blainville's horned lizard.
- Surveys shall be conducted by placing coverboards on the ground 4 to 6 weeks in advance of the survey effort, and checking the area under the coverboards for horned lizards on a weekly basis. Coverboards can consist of untreated lumber, sheet metal, corrugated steel, or other flat material. Captured lizards shall be placed immediately into containers containing sand or moist paper towels and released in designated receptor locations no more than three hours after capture.
- If the biologist believes there is high potential for previously relocated lizards to return to the impact sites following relocation, silt fence shall be installed to prevent relocated individuals from reoccupying areas proposed for disturbance.

MM 5.7-8: Pre-construction Nesting Bird Surveys. Within 30 days prior to vegetation clearing or ground disturbance associated with construction or grading that would occur during the nesting/breeding season of native bird species potentially nesting on the site (typically February through August in the project region, or as determined by a qualified biologist), the Applicant shall have weekly surveys conducted by a qualified biologist to determine if active nests of special-status bird species, or of any bird species protected by the Migratory Bird Treaty Act or the California Fish and Game Code, are present in the disturbance zone or within 300 feet (500 feet for raptors) of the disturbance zone. The surveys shall occur on a weekly basis, with the last survey being conducted no more than seven days prior to initiation of disturbance work. If ground disturbance activities are delayed, then additional pre-disturbance surveys shall be conducted such that no more than seven days will have elapsed between the survey and ground disturbance activities. The Applicant or contractor shall provide the biologist with plans detailing the extent of proposed ground disturbance prior to the survey effort.

If active nests are found, clearing and construction within 300 feet of the nest (500 feet for raptors) shall be postponed or halted, until the nest is vacated and juveniles have fledged, as determined by the biologist, and there is no evidence of a second attempt at nesting. Limits of construction to avoid an active nest shall be established in the field with highly visible construction fencing, and construction personnel shall be instructed on the sensitivity of nest

areas. Occupied nests adjacent to the construction site shall also be avoided to ensure nesting success. A qualified biologist shall serve as a construction monitor during those periods when construction activities will occur near active nest areas to ensure that no inadvertent impacts on these nests occur. The results of the surveys, including graphics showing the locations of any nests detected, and documentation of any avoidance measures taken, shall be submitted to the LACDRP and CDFG within 14 days of completion of the pre-construction surveys or construction monitoring to document compliance with applicable state and federal laws pertaining to the protection of native birds.

MM 5.7-9: Pre-construction Wintering Burrowing Owl Surveys. If construction or site preparation activities are scheduled during the non-nesting season of the burrowing owl (typically September through January), the Applicant shall retain a qualified biologist to conduct wintering burrowing owl surveys within the area to be disturbed. The survey shall be conducted no more than 21 days prior to commencement of construction activities in the area. During the construction period, the results of the surveys, including graphics showing the locations of any active burrows detected and any avoidance measures required, shall be submitted to the LACDRP and CDFG on a monthly basis. If active burrows are detected, the required avoidance measures shall conform to the following:

- If burrowing owls are observed using burrows during the non-breeding season, occupied burrows shall be left undisturbed, and no construction activity shall take place within 300 feet of the burrow where feasible (see below).
- If disturbance of owls and owl burrows is unavoidable, owls shall be excluded from all active burrows through the use of exclusion devices placed in occupied burrows in accordance with CDFG protocols (CDFG 1995). Specifically, exclusion devices, utilizing one-way doors, shall be installed in the entrance of all active burrows. The devices shall be left in the burrows for at least 48 hours to ensure that all owls have been excluded from the burrows. Each of the burrows shall then be excavated by hand and refilled to prevent reoccupation. Exclusion shall continue until the owls have been successfully excluded from the disturbance area, as determined by a qualified biologist.
- If construction activities must be initiated in any area of the site during the burrowing owl breeding season (typically February through August), pre-construction surveys for burrowing owls shall be conducted. Any active burrowing owl burrows found at this season shall not be disturbed. Construction activities shall not be conducted within 300 feet of an active burrow at this season.

MM 5.7-10: Burrowing Owl Management Plan. Prior to issuance of a grading permit, a habitat management plan for the burrowing owl shall be developed for portions of the site supporting suitable habitat for burrowing owl and away from Project facilities and the solar panel arrays. Specifically, this plan shall be developed for implementation in the

undeveloped areas surrounding Drainage A and in the southernmost portion of the Project site, near West Avenue E. At a minimum, the plan shall include the following elements:

- If occupied burrows are to be removed, the plan shall contain schematic diagrams of artificial burrow designs and a map of potential artificial burrow locations within Drainage A and Drainage C that would compensate for the burrows removed.
- A methodology for the eviction and passive relocation of any owls from the impact area to proactively established artificial burrows.
- Provisions for vegetation management, specifying the maximum allowable vegetative cover adjacent to established artificial burrows and the methodology to be used in maintaining the appropriate cover.
- Measures prohibiting the use of rodenticides.
- The plan shall specify a minimum of 6.5 acres of suitable foraging habitat to be preserved or created through revegetation and restoration practices for every active burrowing owl burrow within the Project site. These mitigation areas shall not be located in areas shaded by the proposed solar arrays, and shall not be subject to vegetation mowing or other fuel management practices. Foraging areas shall be located adjacent to suitable natural or artificial burrow locations.

The Burrowing Owl Habitat Management Plan may be prepared and presented either as a stand-alone document or as a component of the HEVMP required by Mitigation Measure 5.7-1, and shall be submitted to the LACDRP and CDFG for review and approval prior to issuance of a grading permit for the Project.

MM 5.7-11: Facility Lighting. Project facility lighting shall be designed to provide the minimum illumination needed to achieve safety and security objectives. All lighting shall be directed downward and shielded to focus illumination on the desired areas only and avoid light trespass into adjacent areas. Lenses and bulbs shall not extend below the shields. The lighting plan shall be submitted to LACDPW for review and approval.

MM 5.7-12: Desert Kit Fox. To avoid injury or mortality of the desert kit fox, preconstruction surveys shall be conducted for this species concurrent with the pre-construction nesting bird surveys required by Mitigation Measure 5.7-4. A qualified biologist shall perform pre-construction surveys for kit fox dens in the Project site and along the proposed transmission line route, and shall survey all areas where Project facilities, transmission line poles, grading, mowing, equipment access, or other disturbances are proposed. If dens are detected, each den shall be classified as inactive, potentially active, or definitely active. Inactive dens in areas that would be impacted by construction activities shall be excavated by hand and backfilled to prevent reuse by desert kit fox. Active and

potentially active dens in areas that would be impacted by construction activities shall be monitored by the biological monitor for three consecutive nights using a tracking medium (such as diatomaceous earth or fire clay) and/or infrared camera stations at the entrance. If no tracks are observed in the tracking medium or no photos of the target species are captured after three nights, the den shall be excavated and backfilled by hand to prevent reuse. If tracks are observed, the den shall be progressively blocked with natural materials (rocks, dirt, sticks, and vegetation piled in front of the entrance) for the next three to five nights to discourage the kit fox from continuing to use the den. After verification that the den is unoccupied, it shall then be excavated and backfilled by hand to prevent reuse, while ensuring that no kit fox are trapped in the den. The Applicant shall submit a report to the LACDRP and CDFG within 30 days of completion of the kit fox surveys describing the survey methods, results, and details of any dens backfilled or foxes observed.

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TABLE 5.7-1
JURISDICTIONAL STREAMS WITHIN THE PROJECT SITE

	On-site Length	Width (Range)	Flow Regime	Jurisdictional Acreage (USACE)	Jurisdictional Acreage (CDFG/RWQCB)
Drainage A	8,315 feet	20 to 50 feet	Intermittent	0 acres	2.68 acres
Drainage B	2,400 feet	3 to 5 feet	Ephemeral	0 acres	0.61 acres
Drainage C	1,400 feet	20 to 30 feet	Intermittent	0 acres	1.02 acres
Drainage D	1,500 feet	30 to 40 feet	Ephemeral	0 acres	0.27 acres
Total	13,615 feet	N/A	N/A	0 acres	4.58 acres

TABLE 5.7-2
SPECIAL-STATUS PLANTS NOT OBSERVED BUT WITH POTENTIAL TO OCCUR WITHIN THE PROJECT SITE AND ALONG THE PROPOSED TRANSMISSION LINE ROUTE

Scientific Name	Common Name	Regulatory Status	Blooming Period	Habitat Requirements	Site Suitability/Survey Results	Potential to Occur
Abronia villosa var. *aurita*	Chaparral sand-verbena	CNPS 1B.1	January – September	Chaparral, coastal scrub, and desert habitats in sandy soil from 80 to 1,600 meters (approximately 262 to 5,249 feet) elevation.	May be present in areas where soil conditions are appropriate. Recorded in Los Angeles County, West Mojave Desert region 15 miles east of Palmdale on southern slope of Lovejoy Buttes in Mojave Desert in 1971.	Unlikely
Arenaria macradenia var. *kuschei*	Kusche's sandwort	CNPS 1B.1	June – July	Decomposed granitic sunny openings in oak woodlands, chaparral or low scrub from 1,220 to 1,700 meters (4,003 to 5,577 feet) elevation.	No suitable habitat is present. Known from approximately 5 observations in 1997 in Burnt Peak and Liebre Mountain quadrangles, in NW Los Angeles County, approximately 8 miles southwest of the Project site.	Unlikely
Astragalus hornii var. *hornii*	Horn's milk-vetch	CNPS 1B.1	May – October	Meadows, seeps, alkaline playas and lake margins from 60 to 850 meters (approximately 200 to 2,750 feet) elevation.	Marginal habitat is present. One collection in 1931 from an unknown location approximately 8 miles northeast of the Project site.	Unlikely
California macrophylla	Round-leaved filaree	CNPS 1B.1	March – May	Cismontane woodland and valley and foothill grassland from 15 to 1,200 meters (approximately 50 to 3,900 feet) elevation, where it grows in clay soils.	No suitable habitat exists on the site. Known from Elizabeth Lake, approximately 8 miles to the south, in 1888.	Unlikely

TABLE 5.7-2 (CONTINUED)
SPECIAL-STATUS PLANTS NOT OBSERVED BUT WITH POTENTIAL TO OCCUR WITHIN THE PROJECT SITE AND ALONG THE PROPOSED TRANSMISSION LINE ROUTE

Scientific Name	Common Name	Regulatory Status	Blooming Period	Habitat Requirements	Site Suitability/Survey Results	Potential to Occur
Calochortus striatus	Alkali mariposa lily	CNPS 1B.2	April – June	Chaparral, chenopod scrub, Mojavean desert scrub, meadows and seeps in alkaline, mesic soils from 70 to 1,595 (approximately 230 to 5,233 feet) elevation.	Suitable habitat present on-site. The species usually occurs in wetlands, but occasionally found in non wetlands. The nearest occurrence was recorded in 1998, approximately 11 miles west of the Project site.	Unlikely
Calystegia peirsonii	Peirson's morning-glory	CNPS 4.2	April – June	Chaparral, chenopod scrub, cismontane woodland, coastal scrub, lower montane coniferous forest, and valley and foothill grassland from 30 to 1,500 meters (approximately 100 to 4,900 feet) elevation. Often found in disturbed areas, along roadsides, or in grassy open areas.	Suitable habitat found on-site. Known from the Elizabeth Lake and Lake Hughes areas. Also known from 1982 on valley floor approximately 8 miles southeast of the Project site.	Likely
Canbya candida	White pygmy-poppy	CNPS 4.2	March – June	Joshua tree "woodland," Mojavean desert scrub, pinyon and juniper woodland in gravelly, sandy, and granitic soils from 600 to 1,460 meters (approximately 1,969 to 4,790 feet) elevation.	Suitable habitat found on-site. One or more known populations in Los Angeles County, quadrangle-level data pending.	Likely

TABLE 5.7-2 (CONTINUED)
SPECIAL-STATUS PLANTS NOT OBSERVED BUT WITH POTENTIAL TO OCCUR WITHIN THE PROJECT SITE AND ALONG THE PROPOSED TRANSMISSION LINE ROUTE

Scientific Name	Common Name	Regulatory Status	Blooming Period	Habitat Requirements	Site Suitability/Survey Results	Potential to Occur
Chorizanthe parryi var. *fernandina*	San Fernando Valley spineflower	SE, CNPS 1B.1	April – July	Sandy soils in coastal scrub and valley and foothill grassland from 150 to 1,220 meters (approximately 500 to 4,000 feet) elevation.	Suitable habitat found on-site. Three plants collected approximately 8 miles west of the Project site from Elizabeth Lake, Lake Hughes quadrangle, in 1929, but possibly extirpated.	Unlikely
Harpagonella palmeri	Palmer's grapplinghook	CNPS 4.2	March – May	Chaparral, coastal scrub, valley and foothill grassland in clay soil from 20 to 955 meters (approximately 66 to 3,133 feet) elevation.	Appropriate soil is rare on the Project site. One or more populations known in Los Angeles County, pending additional quadrangle-level data.	Unlikely
Layia heterotricha	Pale-yellow layia	CNPS 1B.1	March – June	Valley grassland, foothill woodland, pinyon-juniper woodland, and wetland-riparian habitats in alkaline or clay soils from 300 to 1,705 meters (approximately 984 to 5,594 feet) elevation.	Suitable habitat may be present on-site. Closest recorded occurrence in the western San Gabriel Mountains, north of San Franscisquito Canyon, on road to Palmdale in 1969, approximately 20 miles southwest of the Project site.	Unlikely
Opuntia basilaris var. *brachyclada*	Short-joint beavertail	CNPS 1B.2	April – June	Chaparral, Joshua tree woodland, Mojavean desert scrub, and pinyon and juniper woodland from 425 to 1,800 meters (approximately 1,400 to 5,850 feet) elevation.	May occur in Joshua tree woodland along the proposed and alternate transmission line routes. Occurs approximately 6 miles south of the Project site, north of Lake Hughes.	Likely

TABLE 5.7-2 (CONTINUED)
SPECIAL-STATUS PLANTS NOT OBSERVED BUT WITH POTENTIAL TO OCCUR WITHIN THE PROJECT SITE AND ALONG THE PROPOSED TRANSMISSION LINE ROUTE

Scientific Name	Common Name	Regulatory Status	Blooming Period	Habitat Requirements	Site Suitability/Survey Results	Potential to Occur
Symphyotrichum greatae	Greata's aster	CNPS 1B.3	June – October	Broadleafed upland forests, chaparral, cismontane woodland, lower montane coniferous forest, and mesic riparian woodland from 300 to 2,100 meters (approximately 975 to 6,800 feet) elevation.	No suitable habitat exists on the site. Occurs in the western San Gabriel Mountains, approximately 10 miles west southwest of the site.	Unlikely

Status Definitions:
FE = Federally Endangered.
SE = State Endangered.
CNPS = California Native Plant Society.
1A = Presumed extinct/extirpated in California.
1B = Plants that are rare, threatened, or endangered in California and elsewhere.
2 = Rare, threatened, and endangered in California but more common elsewhere.
3 = Plants about which more information is needed.
4 = A watch list of plants of limited distribution.
.1 = Seriously endangered in California.
.2 = Fairly endangered in California.
.3 = Not very endangered in California.

TABLE 5.7-3
SPECIAL-STATUS WILDLIFE SPECIES OBSERVED WITHIN THE PROJECT SITE AND ALONG THE PROPOSED TRANSMISSION LINE ROUTE

Common Name	Scientific Name	Regulatory Status	Nesting/ Breeding Period	Habitat Requirements	Site Suitability/Survey Results
Reptiles and Amphibians					
Coast horned lizard	*Phrynosoma blainvillii*	CSC	May – June (variable)	Habitats include scrubland, grassland, coniferous forests, and broadleaf woodland. Species requires open areas for sunning, bushes for cover, patches of loose soil for burial, and an abundant supply of native ants and other insects.	Annual grassland and sandy washes are present in Project area. One individual was observed on sandy substrate within Drainage C in the southeastern corner of the Project site. CNDDB documented sighting 2 miles south in habitat similar to Project area.
Birds					
Brewer's sparrow	*Spizella breweri*	SA (nesting)	May – August	Treeless shrub habitats, especially in sagebrush (*Artemisia tridentata*), with canopy cover usually less than five feet high. Nests are typically placed in sagebrush or other shrubs, rarely on the ground.	Not known to nest in the lower-lying areas of the valley. Present on the Project site in small numbers during winter surveys, and in larger numbers in April; absent after early May. This species was observed on the Project site but not along the transmission line route, and observed individuals were wintering or migrants.
Burrowing owl	*Athene cunicularia*	CSC (breeding)	March – August (peak April – May)	Open, dry grasslands, brushlands, and deserts. Needs burrows (such as dug by ground squirrels) and friable soils. Prefers low perches such as fence posts.	Seen in winter and spring in Drainages A and C and in the northeastern part of the site. Nesting was confirmed off-site in Drainage C and likely occurred on-site in Drainage A, where 11 burrows with owl sign were found. Suitable foraging habitat throughout the Project site and the proposed transmission line route, but no burrows or owls were found along the latter.

TABLE 5.7-3 (CONTINUED)
SPECIAL-STATUS WILDLIFE SPECIES OBSERVED WITHIN THE PROJECT SITE AND ALONG THE PROPOSED TRANSMISSION LINE ROUTE

Common Name	Scientific Name	Regulatory Status	Nesting/ Breeding Period	Habitat Requirements	Site Suitability/Survey Results
Chipping sparrow	*Spizella passerina*	SA (nesting)	May – August	Open woodlands with sparse or low herbaceous cover and a low density of shrubs. Nests in conifers, but also in deciduous trees and shrubs.	No suitable woodland habitat on-site or along proposed transmission line route. One individual detected during breeding bird surveys of the proposed transmission line route was judged to be a migrant. Species was not detected within the Project site.
Ferruginous hawk	*Buteo regalis*	SA (wintering)	Wintering only in California	Open grasslands, sagebrush flats, desert scrub, low foothills surrounding valleys. Perches on power poles and on ground. Avoids urban areas.	Habitat within the Project site and much of the proposed transmission line route is suitable for foraging. One individual was observed over the site in February 2010.
Greater roadrunner	*Geococcyx californianus*	SBS	Late February – August	Nests in isolated thickets of small trees and shrubs in steep foothill canyons, desert woodland, and coastal sage scrub.	No suitable nesting habitat on the site, although suitable foraging habitat exists north of SR-138. May nest in Joshua tree woodland near the site and along the proposed transmission line route. One individual was observed at the northern boundary of the site. Species was not detected along the transmission line route.
Lark sparrow	*Chondestes grammacus*	SA (nesting)	March – July	Sparse woodlands, open brushy habitats, and grasslands with scattered trees and shrubs. Nests usually built on ground in herbage shaded by a tussock or small shrub.	Suitable nesting habitat occurs near the best perching opportunities, such as Joshua trees or other isolated trees. Spring sightings were in these areas in 2009. This species was detected both within the site and along the transmission line route, and likely nests in small numbers on-site.

TABLE 5.7-3 (CONTINUED)
SPECIAL-STATUS WILDLIFE SPECIES OBSERVED WITHIN THE PROJECT SITE AND ALONG THE PROPOSED TRANSMISSION LINE ROUTE

Common Name	Scientific Name	Regulatory Status	Nesting/ Breeding Period	Habitat Requirements	Site Suitability/Survey Results
Lawrence's goldfinch	*Carduelis lawrencei*	SA (nesting)	Late March – July	Breeds in valley foothill woodland, desert riparian, palm oasis, pinyon-juniper, and lower montane habitats. Nests in oaks and a variety of other trees. Most often nests near water in open, arid woodland.	No nesting habitat on-site, but potentially some suitable habitat present along the proposed transmission line route. Several individuals observed in spring were in this area. This species was detected along the transmission line route only.
Loggerhead shrike	*Lanius ludovicianus*	CSC (nesting)	March – August	Requires tall shrubs or trees for perching and nest placement; open grassy or brushy areas for hunting; and impaling sites, including thorny plants and barbed wired fences, for manipulating and storing prey.	Nested at several locations within the Project site and along the transmission line route in 2009; habitat is present along much of the route. Nesting also likely occurs in Joshua tree woodland just north of the Project site.
Long-eared owl	*Asio otus*	CSC (nesting)	February – June	Usually hunts in open areas, occasionally in woodland and forested habitats. Requires riparian or other thickets with relatively small, densely canopied trees for roosting and nesting.	Abundant suitable open areas for hunting on-site, where some trees are probably suitable for nesting; however, no owls were found there in 2009. A wing feather found on-site indicates foraging and probable nesting nearby. Potential to nest near the transmission line route, near Gaskell Road. Sign of this species was detected only within the Project site.
Merlin	*Falco columbarius*	WL (wintering)	Wintering only in California	Present in a variety of habitats, including grasslands, agriculture, open brushlands, and open forest. Requires dense stands of trees for roosting and feeds primarily on small birds.	Suitable foraging habitat on the Project site and proposed transmission line route. Potentially suitable roost sites on-site near the ranch house and near the proposed transmission line route. Individuals were observed twice in the winter 2008–2009, on-site only, although no bird surveys were conducted along the transmission line route in winter.

TABLE 5.7-3 (CONTINUED)
SPECIAL-STATUS WILDLIFE SPECIES OBSERVED WITHIN THE PROJECT SITE AND ALONG THE PROPOSED TRANSMISSION LINE ROUTE

Common Name	Scientific Name	Regulatory Status	Nesting/ Breeding Period	Habitat Requirements	Site Suitability/Survey Results
Mountain bluebird	*Sialia currucoides*	SBS (wintering)	Mainly wintering in Los Angeles County	Prefers relatively flat grasslands with few trees, as well as irrigated pastures.	Suitable wintering habitat over most of the Project site, mostly in California annual grassland and wildflower fields. Individuals or flocks were seen on several occasions in the winter of 2008–2009. Portions of the proposed transmission line route are suitable. Only recorded onsite in the winter 2008–2009, but no winter bird surveys were conducted on the transmission route.
Northern harrier	*Circus cyaneus*	CSC (nesting)	March – August	Found mostly in flat, or hummocky, open areas that contain tall, dense grasses, moist or dry shrubs, and edges. Uses tall grasses and forbs in wetlands, or at wetland/field borders, for cover. Roosts on the ground.	The site lacks the necessary dense ground cover for roosting or nesting. Suitable foraging habitat present on the Project site and the proposed transmission line route for wintering and migrating individuals. Regularly observed from December 2008 to April 2009 on-site, no observations along the transmission line route.

TABLE 5.7-3 (CONTINUED)
SPECIAL-STATUS WILDLIFE SPECIES OBSERVED WITHIN THE PROJECT SITE AND ALONG THE PROPOSED TRANSMISSION LINE ROUTE

Common Name	Scientific Name	Regulatory Status	Nesting/ Breeding Period	Habitat Requirements	Site Suitability/Survey Results
Prairie falcon	*Falco mexicanus*	WL (nesting)	March – July	Inhabits dry, open terrain, either level or hilly, and requires breeding sites located on cliffs. May travel more than 20 km from nest.	Suitable foraging habitat on-site and along the proposed transmission line route. No nesting habitat on-site, but nesting may be possible in the Fairmont Butte area or the Sierra Pelona. Individuals were seen in winter and spring 2009 on-site; one was seen along the transmission line route in January 2010. According to the TRTP Revised Biological Resource Specialist Report (Aspen 2009), during habitat surveys in 2007, Prairie Falcon were observed to be present in the TRTP project area, which included the Whirlwind Substation area. However, no suitable nesting substrates or nests were found within at least 0.5 miles of the planned Whirlwind location.
Tricolored blackbird	*Agelaius tricolor*	CSC (nesting)	April – July (breeds in colonies)	Breeds near fresh water, often in emergent vegetation, but also in thickets of willow, blackberry, wild rose, and tall herbs. Feeds in grasslands, agricultural lands, flooded fields, and pond edges. May travel more than six miles to forage.	No suitable nesting habitat on-site or in the proposed transmission line route. Several known nesting sites within seven miles of the Project site. Single observations on-site and along the proposed transmission line route during breeding bird surveys may have involved birds nesting in the general vicinity of the Project site.
Vaux's swift	*Chaetura vauxi*	CSC (nesting)	May – mid-August	Redwood and Douglas fir habitats with nesting sites in large hollow trees and snags, especially tall, burned-out stubs. Feeds on flying arthropods.	No suitable nesting or foraging habitat on-site or in the proposed transmission line route. Two flying above the site, May 8, 2009, were migrants. This species neither winters nor nests in the area.

TABLE 5.7-3 (CONTINUED)
SPECIAL-STATUS WILDLIFE SPECIES OBSERVED WITHIN THE PROJECT SITE AND ALONG THE PROPOSED TRANSMISSION LINE ROUTE

Common Name	Scientific Name	Regulatory Status	Nesting/ Breeding Period	Habitat Requirements	Site Suitability/Survey Results
Vesper sparrow	*Pooecetes gramineus*	SBS (wintering); CSC (Oregon vesper sparrow only)	Wintering only in region	Occupies grasslands, agricultural lands, and open brushlands in winter. Uses scattered shrubs and patches of tall herbs for cover.	Suitable foraging habitat on the Project site for both the Oregon vesper sparrow (*P. g. affinis*) and the Great Basin vesper sparrow (*P. g. confinis*), both of which may be present in winter and spring. Species was observed from December 2008 to mid-April 2009, on-site only.
Western meadowlark	*Sturnella neglecta*	SBS	March – July	Prefers grasslands, agricultural lands, and other open habitats. Nests on the ground in small depressions in fairly dense vegetation.	At least marginally suitable for breeding over much of the site and the proposed transmission line route. Seen widely on the Project site from December 2008 to June 2009, as well as in the proposed transmission line route from April to June 2009.
Yellow warbler	*Dendroica petechia*	CSC (nesting)	April – early July	Primarily found in deciduous riparian woodlands. Places nest in the upright fork of a shrub, sapling, or tree and feeds on insects and spiders.	No suitable riparian or other woodland habitat on-site or in the proposed transmission line route. An individual at a residence in the transmission line route was a migrant. This species was not observed on-site.
Yellow-breasted chat	*Icteria virens*	CSC (nesting)	May – early August	Riparian thickets of willow and other brushy tangles near watercourses. Normally places nest in dense shrubs near streams or rivers. Feeds mainly on small insects and spiders.	Project site and proposed transmission line route lack suitable riparian thickets. Individual at a residence in the proposed transmission line route was a migrant. This species was not observed on-site.

Status Definitions:
CSC = California Species of Special Concern.
WL = CDFG Watch List Species.
SA = Special Animal.
SBS = Los Angeles County Sensitive Bird Species.

TABLE 5.7-4
SPECIAL-STATUS WILDLIFE NOT OBSERVED BUT WITH POTENTIAL TO OCCUR WITHIN THE PROJECT SITE AND ALONG THE PROPOSED TRANSMISSION LINE ROUTE

Common Name	Scientific Name	Regulatory Status	Nesting/ Breeding Period	Habitat Requirements	Site Suitability/Survey Results	Potential to Occur
Reptiles and Amphibians						
California legless lizard	*Anniella pulchra*	CSC	Breeds early Spring to July, Bears young between Sept and Nov.	Sparsely vegetated areas with loose, moist soil, leaf litter layer, insects for prey. Rests and hides under surface objects such as rocks, logs, boards, and under leaf litter around the base of shrubs.	Project site lacks moist soils and leaf litter. Past cultivation was very detrimental to habitat suitability. Nearest sighting is 11 miles away and 20 years old.	Very low
Desert tortoise	*Gopherus agassizii*	FT, ST	March – October	Firm ground for burrows, sandy or gravelly desert habitats, washes, oasis, canyons, alluvial fans. Desert plants for food: grass, cactus, herbs, flowers, legumes. Agriculture renders habitat unsuitable (USFWS 2008).	Area was suitable habitat in past. Cultivation since late 1940s in the western Antelope Valley has made habitat in the vicinity unsuitable. No sightings in vicinity. Project site is 13 miles outside of current range maps.	Very low
Birds						
California condor	*Gymnogyps californianus*	FE, SE	February – May egg laying; courtship as early as October	Nests in caves, crevices, and ledges on cliffs. Roosts in large trees and snags. Forages for carrion over large areas of open savanna, grassland, and foothill chaparral. Prefers large carrion (deer, cattle, sheep).	The Project area and proposed transmission line route are within range of the known population, but only possibly suitable for opportunistic foraging. Low likelihood of suitable carrion: the Project site and proposed transmission line route are not currently grazed by livestock and no evidence of use by deer.	Unlikely, over – flights only

TABLE 5.7-4 (CONTINUED)
SPECIAL-STATUS WILDLIFE NOT OBSERVED BUT WITH POTENTIAL TO OCCUR WITHIN THE PROJECT SITE AND ALONG THE PROPOSED TRANSMISSION LINE ROUTE

Common Name	Scientific Name	Regulatory Status	Nesting/ Breeding Period	Habitat Requirements	Site Suitability/Survey Results	Potential to Occur
Golden eagle	*Aquila chrysaetos*	FP (nesting and wintering)	Late January – August	Nests on cliffs of all heights and in large trees in open areas. Needs open terrain for hunting; occurs in grasslands, deserts, savannahs, and early successional stages of forest and shrub habitats.	Habitat suitable for foraging on the Project site and in much of the proposed transmission line route, but no nesting habitat is near the site. Eagles are not known to nest nearby. According to the TRTP Revised Biological Resources Specialist Report (Aspen 2009), during reconnaissance surveys performed in 2007, one golden eagle was observed approximately 4 miles northwest of the proposed Whirlwind Substation, and a second Golden Eagle was observed occurring up to 15 miles northeast of the planned Whirlwind Substation.	May forage; unlikely to nest

TABLE 5.7-4 (CONTINUED)
SPECIAL-STATUS WILDLIFE NOT OBSERVED BUT WITH POTENTIAL TO OCCUR WITHIN THE PROJECT SITE AND ALONG THE PROPOSED TRANSMISSION LINE ROUTE

Common Name	Scientific Name	Regulatory Status	Nesting/ Breeding Period	Habitat Requirements	Site Suitability/Survey Results	Potential to Occur
Le Conte's thrasher	*Toxostoma lecontei*	SA	January – June peak March – April	Open desert wash, desert scrub, alkali desert scrub, and desert succulent shrub habitats; also occurs in Joshua tree habitat with scattered shrubs. Known in recent years (2005) from sites 9 or more miles northeast and north of the Project site.	Project site likely not suitable as it lacks dense, spiny shrubs for nest sites. Some potential exists for this species to occur in Joshua tree woodland in the proposed transmission line route. However, despite regular biological surveys from December to June, none were detected singing in Joshua tree woodlands near the site or the proposed transmission line route.	Unlikely
Mountain plover	*Charadrius montanus*	CSC (wintering)	Wintering only in California	Uses open grasslands and plowed or burned fields with little or no vegetation. Avoids areas with cover. Twenty-four were observed approximately 3.5 miles east of the Project site on March 13, 1999 (CNDDB).	The site lacks suitable areas of short to no vegetation necessary for this species to winter. Some potential exists for this species to winter in agricultural fields in the proposed transmission line route.	Unlikely

TABLE 5.7-4 (CONTINUED)
SPECIAL-STATUS WILDLIFE NOT OBSERVED BUT WITH POTENTIAL TO OCCUR WITHIN THE PROJECT SITE AND ALONG THE PROPOSED TRANSMISSION LINE ROUTE

Common Name	Scientific Name	Regulatory Status	Nesting/ Breeding Period	Habitat Requirements	Site Suitability/Survey Results	Potential to Occur
Short-eared owl	*Asio flammeus*	CSC (nesting)	March – July	Open areas with few trees, such as annual and perennial grasslands, prairies, dunes, meadows, irrigated lands, and saline and fresh water wetlands with emergents. Requires dense, low-growing vegetation; uses tall grasses, brush, ditches, and wetlands for resting and roosting; and nests on dry ground in a depression concealed in vegetation.	The site lacks suitable dense ground cover for roosting and nesting. Although this species may have bred east of Lancaster in 1995 (Garrett and Molina 1998), breeding has not been confirmed in the Antelope Valley.	Unlikely
Swainson's hawk	*Buteo swainsoni*	SE (nesting)	Late March – August	Open stands of trees in juniper-sage flats, riparian areas, and oak savanna. Forages in adjacent grasslands or suitable grain or alfalfa fields, or livestock pastures. Feeds on a variety of vertebrates during the breeding season.	Suitable foraging habitat if found over much of the site, and suitable trees for nesting are near the ranch house south of SR-138. The nearest known nesting by this species was 5 miles to the east northeast, in 2009 and previously.	Possible
White-tailed kite	*Elanus leucurus*	FP (nesting)	February – August	Forages for small rodents in undisturbed, open grasslands, meadows, farmlands, and emergent wetlands. Roosts in trees with dense canopies. Nests near top of dense oak, willow, or other tree. May forage miles from roost site, but has relatively small home range during breeding season.	Suitable foraging habitat on the Project site. The orchard south of SR-138 is marginal habitat for roosting and unsuitable for nesting.	Unlikely

TABLE 5.7-4 (CONTINUED)
SPECIAL-STATUS WILDLIFE NOT OBSERVED BUT WITH POTENTIAL TO OCCUR WITHIN THE PROJECT SITE AND ALONG THE PROPOSED TRANSMISSION LINE ROUTE

Common Name	Scientific Name	Regulatory Status	Nesting/ Breeding Period	Habitat Requirements	Site Suitability/Survey Results	Potential to Occur
Mammals						
American badger	*Taxidea taxus*	CSC	February – May	Open, dry, shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, uncultivated ground, preys on burrowing rodents.	Nearest sighting was 2 miles south of Project site in similar habitat (1904). Nearly all of Project site was cultivated in the past, but is recovering. Burrowing rodents do occur on Project site. Ground appears to be suitable for denning. Field surveys to date did not locate any badger burrows on Project site or proposed transmission line route.	Possible
Mojave ground squirrel	*Spermophilus mohavensis*	ST	March – May	Optimum habitats are open desert scrub, alkali desert scrub, and Joshua tree woodlands. Can feed in annual grasslands. Very rare throughout its range. Negatively affected by agriculture.	Cultivation of Project site since late 1940s made habitat unsuitable. Development and agriculture throughout western Antelope Valley have extirpated local populations west of Lancaster (Laabs 2004).	Very low
Pallid bat	*Antrozous pallidus*	CSC	Mating: October – February; birth and rearing of young: April – August	Deserts, grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temps, very sensitive to disturbance of roost sites.	Suitable breeding habitat and roost sites do not occur in the Project area or proposed transmission line route, but suitable foraging habitat does occur. No recorded sightings near Project area in CNDDB. May roost in abandoned buildings.	Unlikely, foraging only

TABLE 5.7-4 (CONTINUED)
SPECIAL-STATUS WILDLIFE NOT OBSERVED BUT WITH POTENTIAL TO OCCUR WITHIN THE PROJECT SITE AND ALONG THE PROPOSED TRANSMISSION LINE ROUTE

Common Name	Scientific Name	Regulatory Status	Nesting/ Breeding Period	Habitat Requirements	Site Suitability/Survey Results	Potential to Occur
Tehachapi pocket mouse	*Perognathus alticolus inexpectatus*	CSC	Unknown (Best 1994)	Known from a few scattered localities from Tehachapi Pass to the area of Mt. Pinos, and around Elizabeth, Hughes, and Quail Lakes. Known localities are between about 3,500 and 6,000 feet in elevation. Habitat requirements "not well defined."	Project area below known elevation limit for this species. Sighting is 7 miles south of Project site near Elizabeth Lake in foothill habitat very dissimilar to that found on the Project site or proposed transmission line route.	Very low
Townsend's big-eared bat	*Corynorhinus townsendii*	CSC	Mating: November – February; birth and rearing of young: May – August	Wide variety of habitats including desert scrub. Most common in mesic habitats. Roost in mines, caves, or abandoned buildings. Extremely sensitive to roost disturbance.	Possible foraging habitat on the Project site and proposed transmission line route, but no mesic conditions exist. No roosting habitat exists on the Project site or proposed transmission line route.	Unlikely, foraging only

Status Definitions:
CSC = California Species of Concern.
FE = Federally Endangered.
FT = Federally Threatened.
FP = State Fully Protected.
SE = State Endangered.
ST = State Threatened.
SR = State Rare.
SA = Special Animal.
SBS = Los Angeles County Sensitive Bird Species.

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TABLE 5.7-5
IMPACT OF THE PROJECT ON VEGETATION COMMUNITIES WITHIN THE PROJECT SITE AND ALONG THE PROPOSED TRANSMISSION LINE ROUTE

			Project Impacts to Vegetation (Acres)							
			Vegetation Permanently Removed (Acres)[2]			Vegetation Altered through Habitat Modification (Acres)[3]		Total Long-Term Impacts to Vegetation: Permanent Removal + Modification (Acres)		
Natural Vegetation Type	Existing Vegetation Within the Project Site (Acres) (Refer to Figure 5.7-6)	Vegetation Avoided within Project Site (Acres)[1]	Project Site	Transmission Line Route[4]	Total	Project Site	Transmission Line[5]	Project Site	Transmission Line Route	Total
Rabbitbrush scrub	1,430.9	63.6	516.2	<0.1	516.2	851.2	0.8	1,367	<0.1	1,367
California annual grassland	367.8	7.8	135.9	0	135.9	224.0	0	360	0	360
Wildflower field	236.4	26.6	79.2	0	79.2	130.6	0	210	0	210
Joshua tree woodland	0	0	0	<0.1	0	0	0.1	0	<0.1	0
Joshua tree recruitment area	8.6	8.6	0	0	0	0	0	0	0	0
Desert saltbush scrub	0	0	0	<0.1	0	0	0.1	0	<0.1	0
Subtotal natural vegetation	2,043.7	106.6	731.3	<0.1	731.3	1,205.9	1.0	1,937	<0.1	1,937
Human-created Land Cover Type[6]										
Agriculture	0	0	0	<0.1	<0.1	0	0.5	0	<0.1	<0.1
Orchard	8.8	0	8.8	<0.1	8.8	0	0	8.8	<0.1	8.8
Ornamental	1.8	0	1.8	<0.1	1.8	0	0	1.8	<0.1	1.8
Ruderal	6.9	0	6.9	<0.1	6.9	0	0.1	6.9	<0.1	6.9
Developed	0.9	0	0.9	<0.1	0.9	0	3.6	0.9	<0.1	0.9
Subtotal human-created land cover types	18.4	0	18.4	<0.1	18.4	0	4.2	18.4	<0.1	18.4
Totals (rounded)	2,062	107	750	<1	751	1,206	5	1,955	<1	1,955

1 Vegetation in this column would remain in the pre-project condition and would not be subject to either construction or operation-related project impacts or modification. This includes vegetation associated with mitigation areas, local wildlife movement pathways, avoidance areas, buffers, and setbacks.

2 Permanent removal includes pre-project vegetated areas within the footprint of project facilities including buildings, parking lots, the substation, permanent access roads, transmission poles, and fire breaks. All these areas would be devoid of vegetation post-project.

3 Acreage includes vegetated areas subject to temporary disturbance, shading, and/or ongoing vegetation management. Within the Project site, vegetation temporarily impacted would mowed and/or graded, and would be a subset of vegetation permanently modified by shading and vegetation management practices, but would not be permanently displaced by Project facilities.

4 Permanent disturbance along off-site portion of transmission line route would occur at pole sites (approximately 36 sites each with 50 square feet of permanent disturbance as well as 20-foot-wide access pathways, where applicable).

5 Temporary disturbance areas for transmission line construction would include work areas (approximately 50 by 100 feet) at each pole, and stringing areas (approximately 50 by 200 feet) at each end and in the middle of the overall route. Approximately 5 acres of vegetation would be temporarily disturbed during construction of the off-site portion of the transmission line.

6 The human-created land cover types (Agriculture, Orchard, Ornamental, and Ruderal) would be completely removed during project construction, and would be replaced with vegetation reflecting natural habitats in the region (annual grassland and wildflower field). The "Developed" classification includes the area of 170th Street West that lies within the transmission line corridor, and the existing structures at the residential ranch south of SR-138. The structures would be removed by the project, but 170th Street West would not be altered.

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TABLE 5.7-6A
ON-SITE MITIGATION AND AVOIDANCE AREAS

Area	Acreage
On-site Mitigation Areas[1,2]	
Drainage A Incised Channel Portion plus 100'-wide Buffer (215–250' total width)	34.1
Drainage A Non-incised Channel Portion, 100'-wide Wildlife Travel Route	13.0
Drainage C Setback Area	44.9
Joshua Tree Recruitment Area, Including Buffer	8.6
Total On-site Mitigation Acreage	100.6
On-site Avoidance Areas[1] Not included in Mitigation Acreage	
Drainage B Avoidance Buffer	6.0
Total On-site Avoidance Areas	6.0

1 Does not include Transmission Line Route since that area does not contain any mitigation or avoidance areas.

2 Refer to Figure 5.7-11 for locations.

3 Includes 50' setbacks from SEA boundaries and other non-impacted areas of the Project layout not suitable as mitigation acreage.

TABLE 5.7-6B
ON-SITE MITIGATION AND RECOMMENDED OFF-SITE MITIGATION ACREAGES

Mitigation Area Type	Acres Impacted	Mitigation Ratio[1]	Total Mitigation Acres Required	On-site Mitigation Acres Credit	Additional Off-site Mitigation Acres Required
Total of All Natural Habitats[2]	1,937	0.28:1	551.0	100.6	450.0
Wildflower Field	209.8[3]	1.5:1	314.5[3]	90.0[3, 4]	224.5[3]

1 Refer to Section 5.7.5 (Mitigation Measures), MM 5.7-2 for discussion and basis of listed mitigation ratios.

2 Includes rabbitbrush scrub, California annual grassland, and wildflower field on the site.

3 This acreage is a subset of acres for Total of All Natural Habitats. The total recommended off-site mitigation acreage is 450 acres, of which approximately 225 acres must be wildflower field.

4 On-site mitigation for wildflower field does not count acreage for Joshua Tree Recruitment Area, since it will not be managed as a wildflower field.

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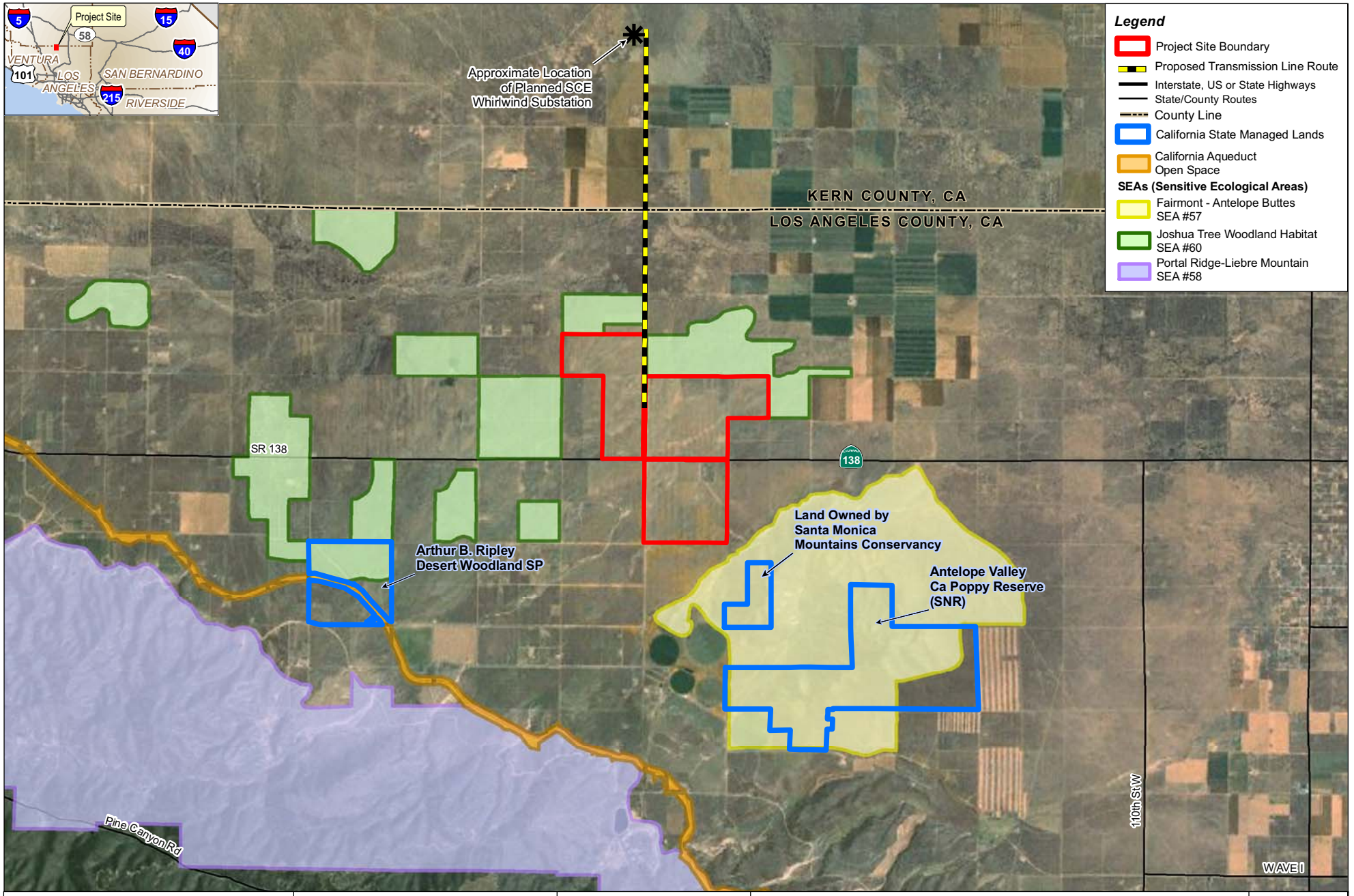


T:\NextLight_AV_EIR\deliverables\AVSR1_EIR\Biology\Fig5_7-1_Project_Site_Vicinity_Map.mxd

N

1:100,000

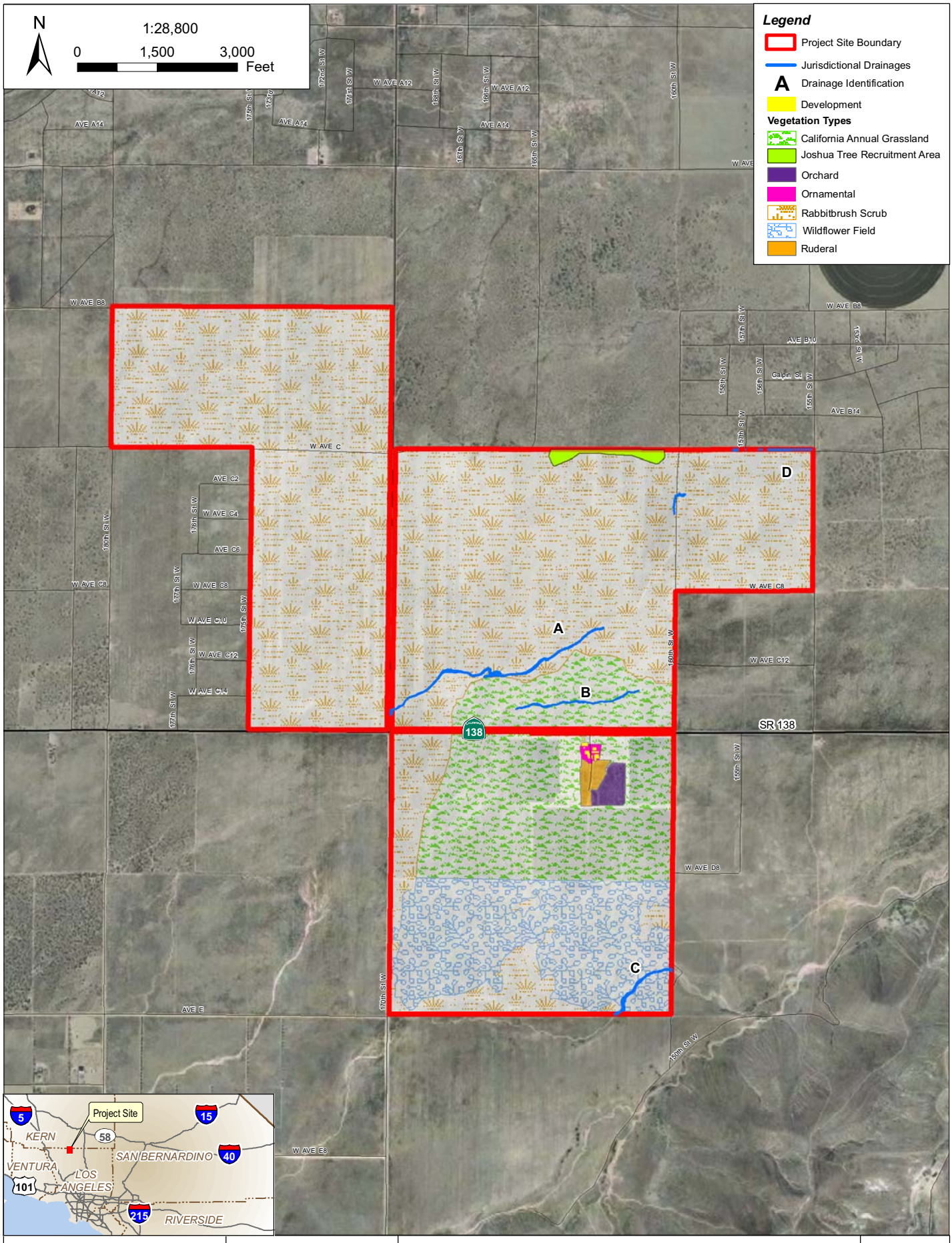
0 0.5 1 1.5 2 Miles

Source:
[1] I-cubed Nationwide Prime - Aerials Express (2007-02-15 image date, 0.3m resolution), [3] LA County General Plan(1986), [4] Antelope Valley Area Wide General Plan (1986), Accessed February 2009: http://planning.lacounty.gov/gis/data.

AV Solar Ranch One EIR

Figure 5.7-1. PROJECT SITE VICINITY MAP

2010



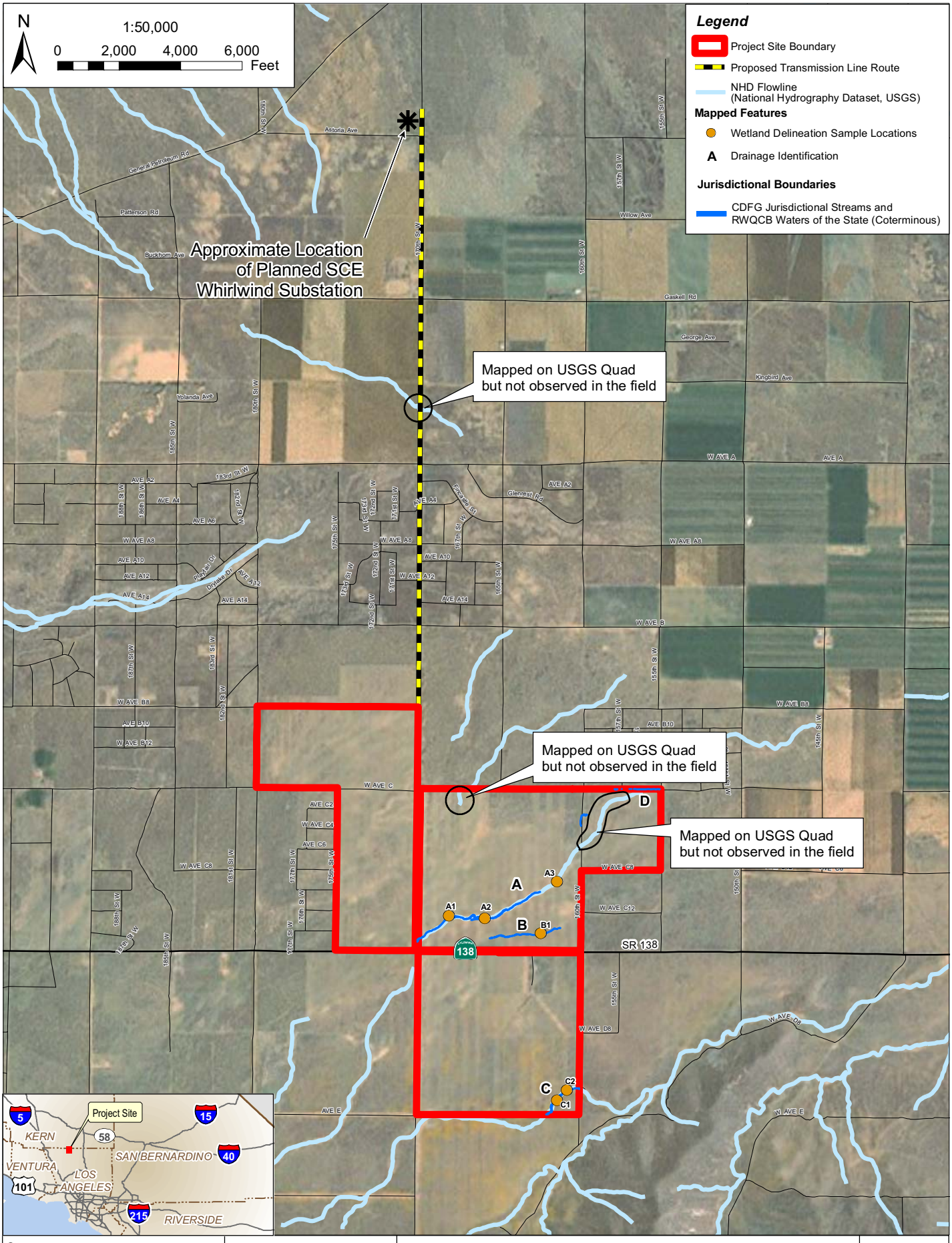
T:\WestLight_AV_EIR\deliverables\AVSR1_EIR\Biology\Fig5_7-2_Vegetation_Communities.mxd

Image Source:
[1] I-cubed Nationwide Prime - Aerials Express (2007-02-15 image date, 0.3m resolution), [2] ESRI StreetMap USA (2007), [3] URS Field Surveys, (2009).

AV Solar Ranch One EIR

Figure 5.7-2. VEGETATION COMMUNITIES WITHIN THE PROJECT SITE

2010



T:\Next\Light_AV_EIR\deliverables\AVSR1_EIR\Biology\Fig5_7-3_Jurisdictional_Streambeds.mxd

Source:
[1] I-cubed Nationwide Prime - Aerials Express (2007-02-15) image date, 0.3m resolution), [2] ESRI StreetMap USA (2007), [3] National Hydrography Dataset, US Geological Survey Flowline (2007).

AV Solar Ranch One EIR

Figure 5.7-3. JURISICTIONAL STREAMBEDS ON THE PROJECT SITE

2010

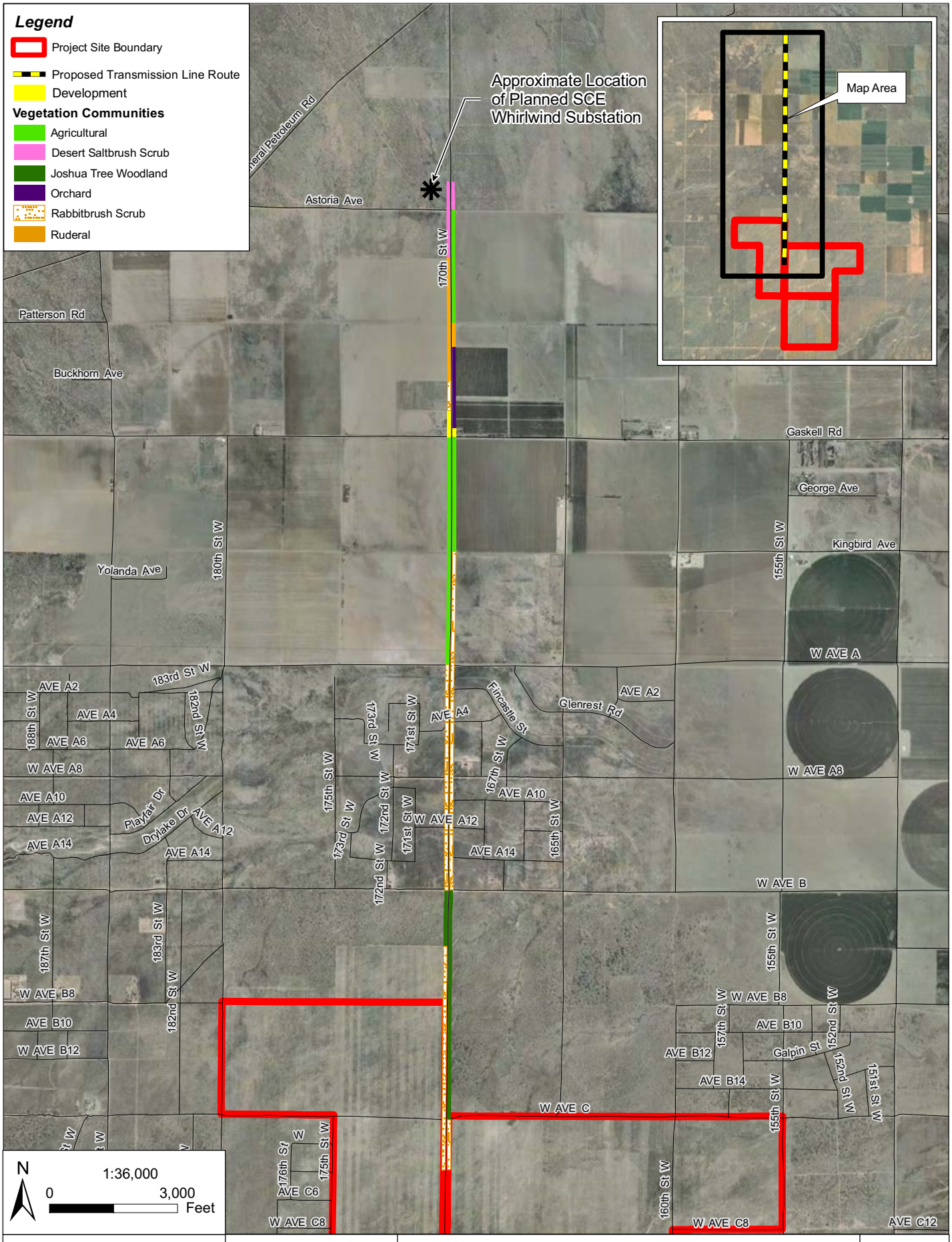


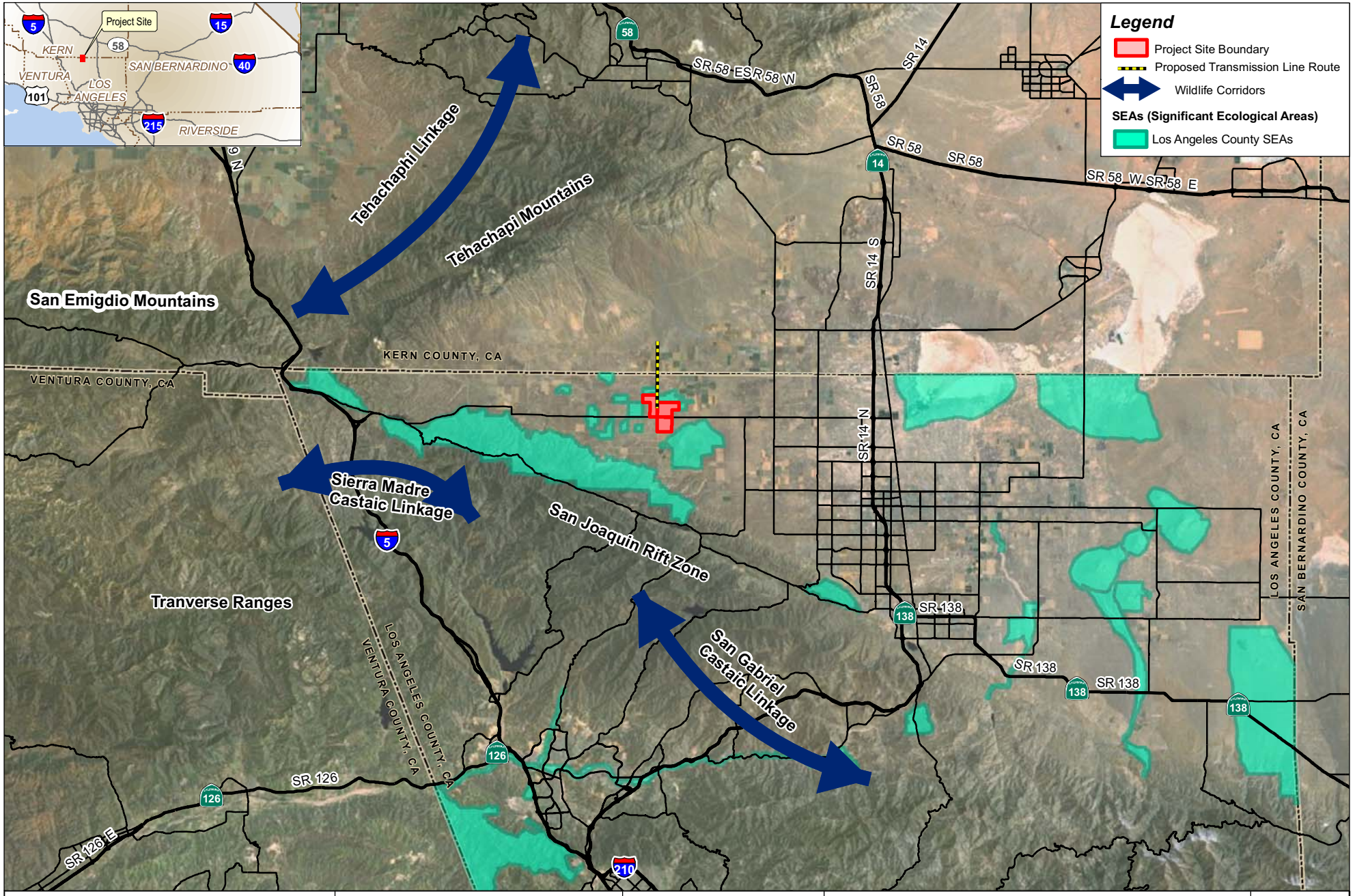
Image Source:
[1] I-cubed Nationwide Prime - Aerials Express (2007-02-15 image date, 0.3m resolution), [2] ESRI StreetMap USA (2007), [3] URS Field Surveys (2009).

AV Solar Ranch One EIR

Figure 5.7-4. VEGETATION COMMUNITIES ALONG THE PROPOSED TRANSMISSION LINE ROUTE

2010

T:\NextLight_AV_EIR\deliverables\AVSR1_EIR\Biology\Fig5_7-4_Vegetation_communities_Tline.mxd



T:\NextLight_AV_EIR\deliverables\AVSR1_EIR\Biology\Fig5_7-5_Wildlife_Movement_in_Project_Region.mxd

N

1:570,000

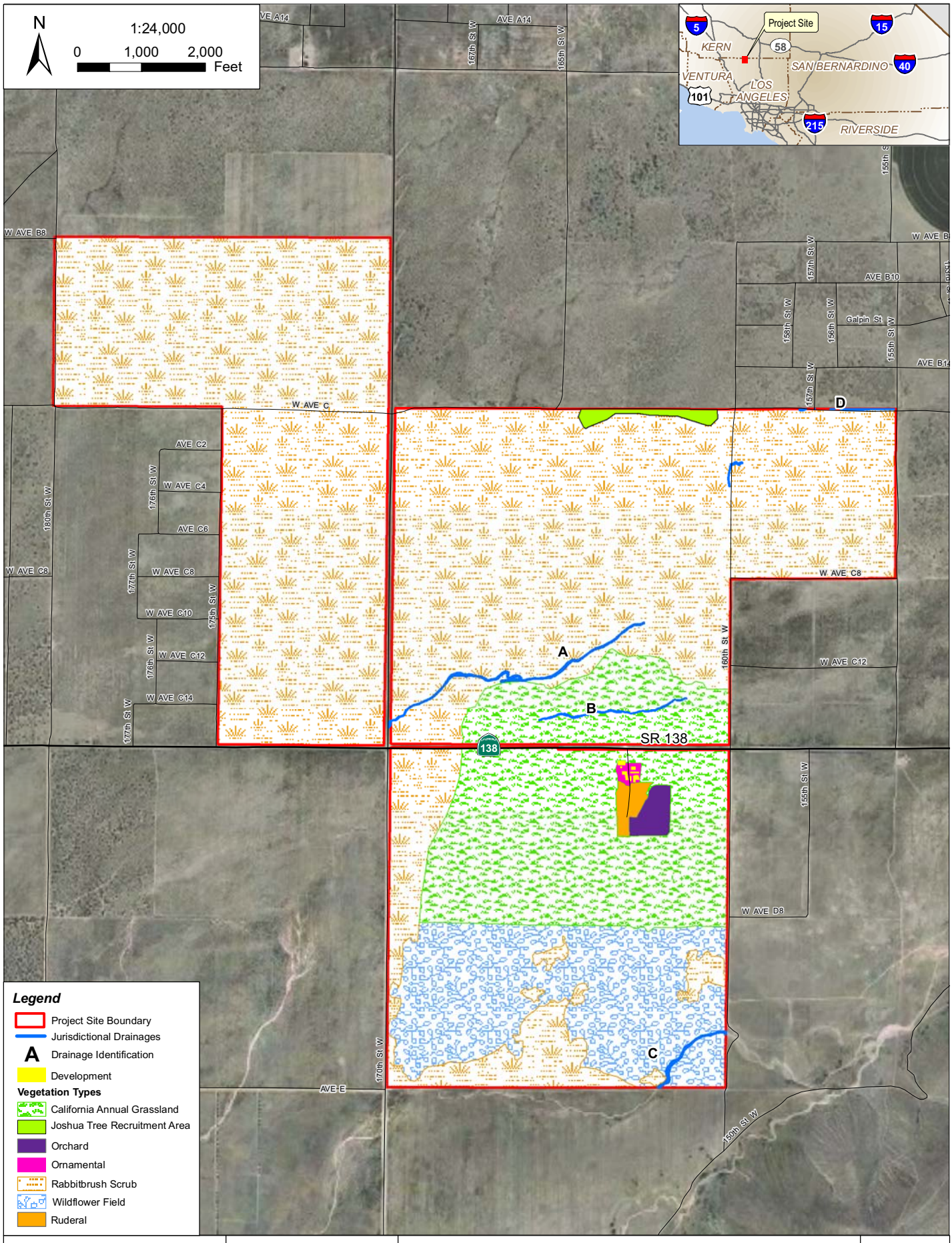
0 3 6 9 12 Miles

Source:
[1] I-cubed Nationwide Prime - Aerials Express (2007-02-15 image date, 0.3m resolution), [3] LA County General Plan(1986), [4] Antelope Valley Area Wide General Plan (1986), Accessed February 2009: http://planning.lacounty.gov/gis/data [5] South Coast Wildlands Linkages (2008).

AV Solar Ranch One EIR

Figure 5.7-5. WILDLIFE MOVEMENT IN THE PROJECT REGION

2010



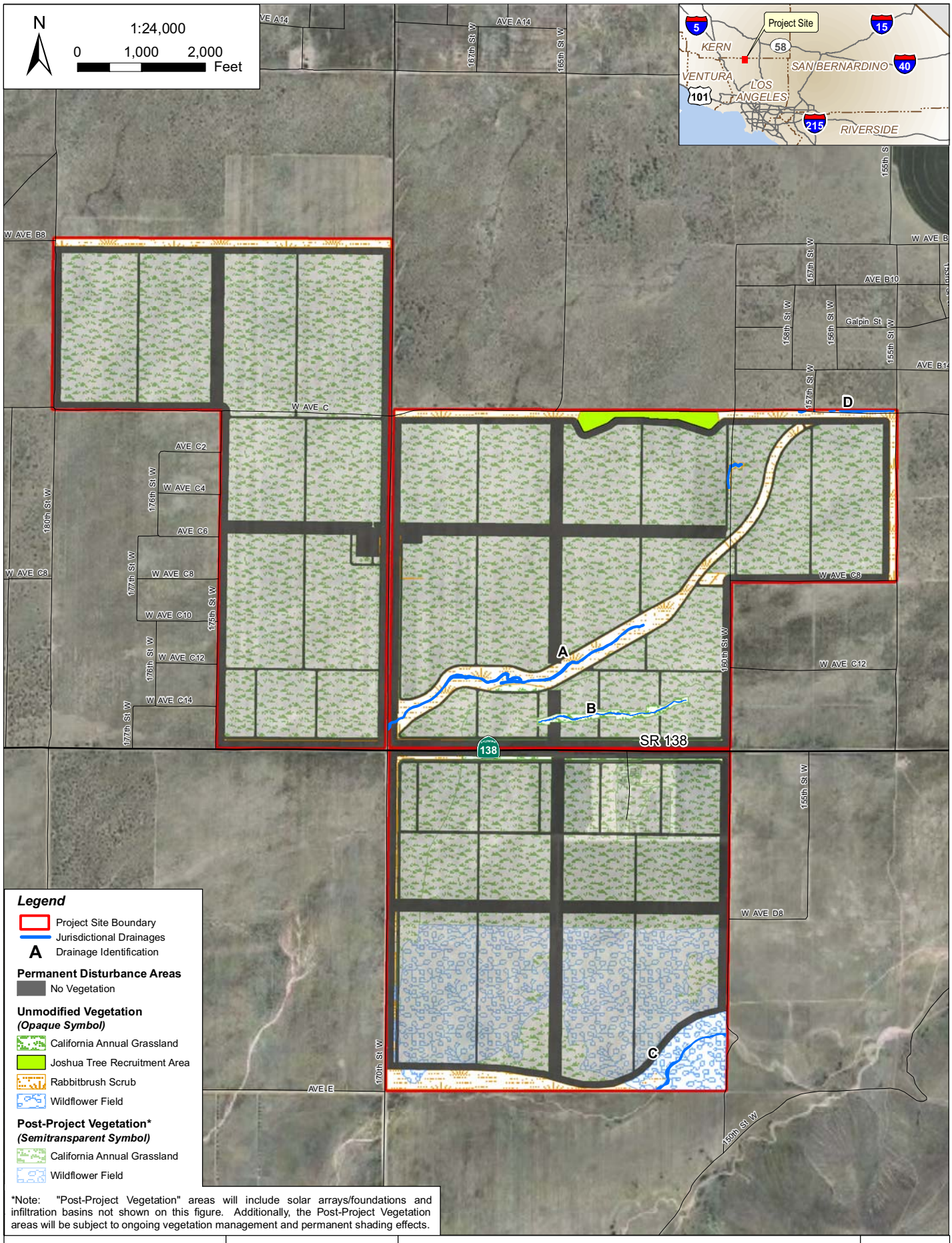
T:\NextLight_AV_EIR\deliverables\AVSR1_EIR\Biology\Fig5_7-6_ExistingVegetationConditions.mxd

Image Source:
[1] I-cubed Nationwide Prime - Aerials Express (2007-02-15 image date, 0.3m resolution), [2] ESRI StreetMap USA (2007), [3] URS Field Surveys, (2009).

AV Solar Ranch One EIR

Figure 5.7-6. EXISTING VEGETATION CONDITIONS

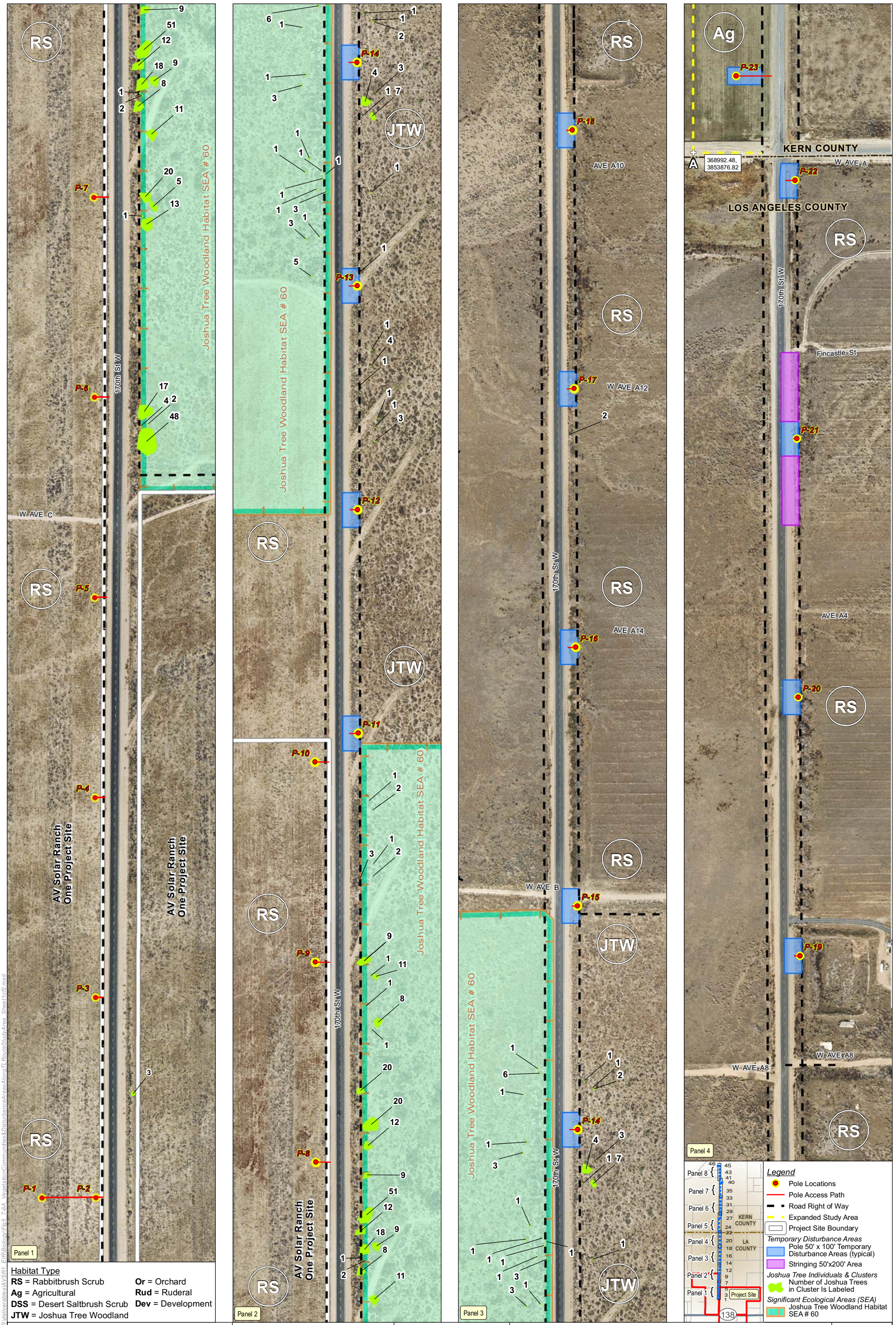
2010



*Note: "Post-Project Vegetation" areas will include solar arrays/foundations and infiltration basins not shown on this figure. Additionally, the Post-Project Vegetation areas will be subject to ongoing vegetation management and permanent shading effects.

T:\WestLight_AV_EIR\Deliverables\AVSR1_EIR\Biology\Fig5_7-7_PostProjectConditions.mxd

Image Source: [1] I-cubed Nationwide Prime - Aerials Express (2007-02-15 image date, 0.3m resolution), [2] ESRI StreetMap USA (2007), [3] URS Field Surveys, (2009).	**AV Solar Ranch One EIR**	**Figure 5.7-7.** POST-PROJECT DEVELOPMENT VEGETATION CONDITIONS	2010



Source: [1] TriAxis Engineering, Inc., [2] SEA: LA County Dept. of Regional Planning (http://planning.lacounty.gov/gis/download), [3] URS Santa Barbara 2010, [4] Image Source: Westwood Professional Services, 0.5 ft. resolution (2009).

AV Solar Ranch One EIR

Figure 5.7-8A. VEGETATION COMMUNITIES AND DISTURBANCE AREAS ALONG TRANSMISSION ROUTE STUDY AREA (Sheet 1 of 2)

2010

T:\NextLight_AV_EIR\deliverables\AVSR1_EIR\Biology\Fig5_7-8A_VegetationCommunities&DisturbanceAreasAlongTLRouteStudyArea_Sheet1of2.mxd

Habitat Type

RS = Rabbitbrush Scrub
Ag = Agricultural
DSS = Desert Saltbrush Scrub
JTW = Joshua Tree Woodland
Or = Orchard
Rud = Ruderal
Dev = Development

*Note: Refer to Figure 5.7-8B for conceptual interconnection to planned SCE Whirlwind Substation.

Ag
Or
DSS
Dev
Rud
P-23
P-24
P-25
P-26
P-27
P-28
P-29
P-30
P-31
P-32
P-33
P-34
P-35
P-36
P-37
P-38
P-39
P-40
P-41
P-42
P-43
P-44
P-45
P-46*
A
B
C
D
E
F
G
H
I
J
368992.48, 3853876.82
369002.76, 3854688.35
369149.04, 3854686.98
369153.76, 3855499.71
369148.12, 3856311.85
369145.57, 3856677.24
369224.7, 3856677.79
369143.75, 3856936.5
369222.88, 3856937.05
369142.45, 3857122.57
170th St W
Gaskell Rd
Astoria Ave
W AVE A
KERN COUNTY
LA COUNTY
PLANNED SCE WHIRLWIND SUBSTATION
Panel 5
Panel 6
Panel 7
Panel 8

Legend
- Pole Locations
- Pole Access Path
- Road Right of Way
- Expanded Study Area
- Project Site Boundary

Temporary Disturbance Areas
- Pole 50' x 100' Temporary Disturbance Areas (typical)
- Stringing 50'x200' Area

Joshua Tree Individuals & Clusters
- Number of Joshua Trees in Cluster Is Labeled

Significant Ecological Areas (SEA)
- Joshua Tree Woodland Habitat SEA # 60

* **Note:** Locations of Poles P-37 through P-46 are conceptual pending input from SCE.

N
1:3,000
0 250 500 Feet
1 inch = 250 feet

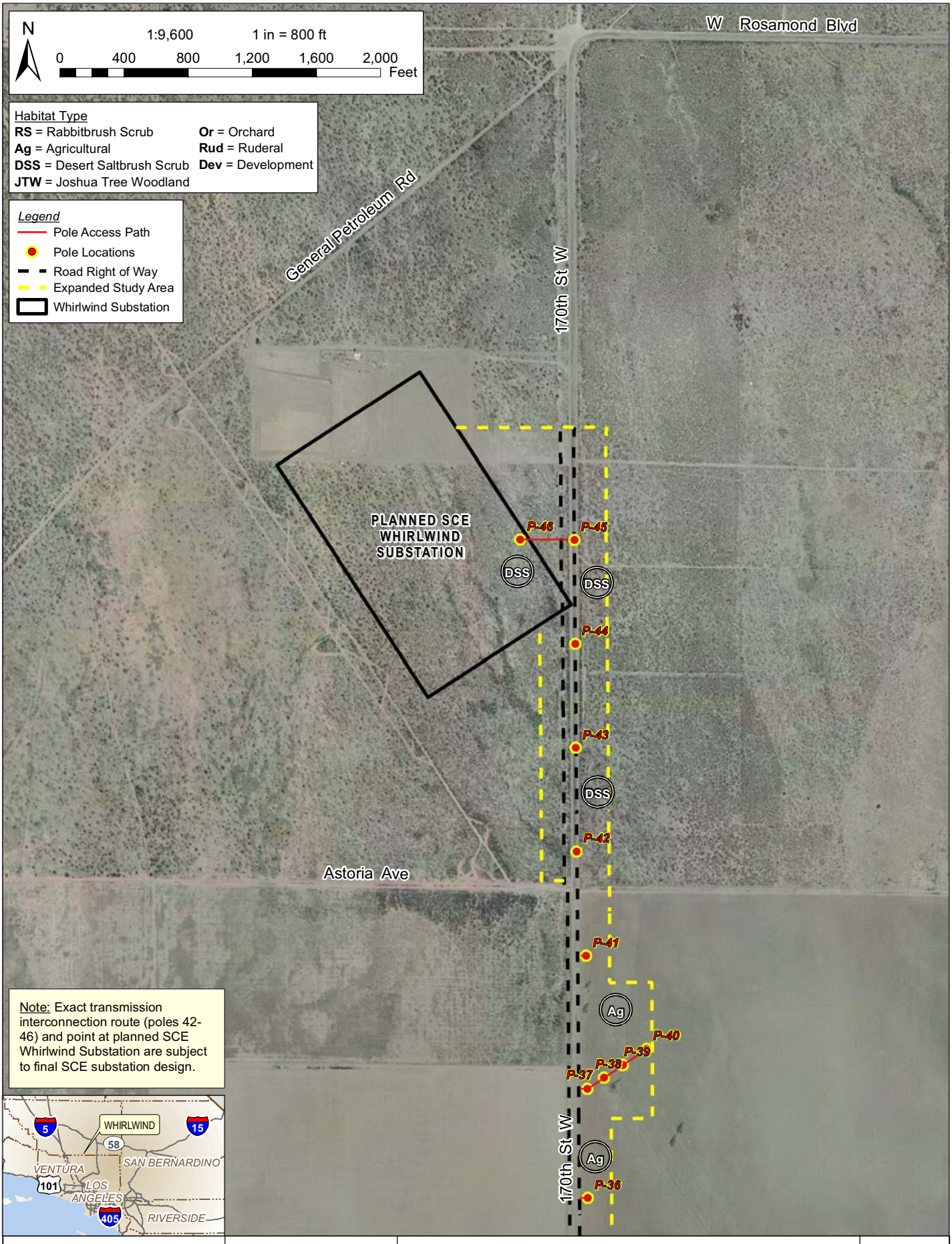
Source: [1] TriAxis Engineering, Inc., [2] SEA: LA County Dept. of Regional Planning (http://planning.lacounty.gov/gis/download), [3] URS Santa Barbara 2010, [4] Image Source: Westwood Professional Services, 0.5 ft. resolution (2009), [5] USGS Orthoimagery-Kern County, CA - 0.333 ft. Apr 2008 .

AV Solar Ranch One EIR

Figure 5.7-8A. VEGETATION COMMUNITIES AND DISTURBANCE AREAS ALONG TRANSMISSION ROUTE STUDY AREA (Sheet 2 of 2)

2010

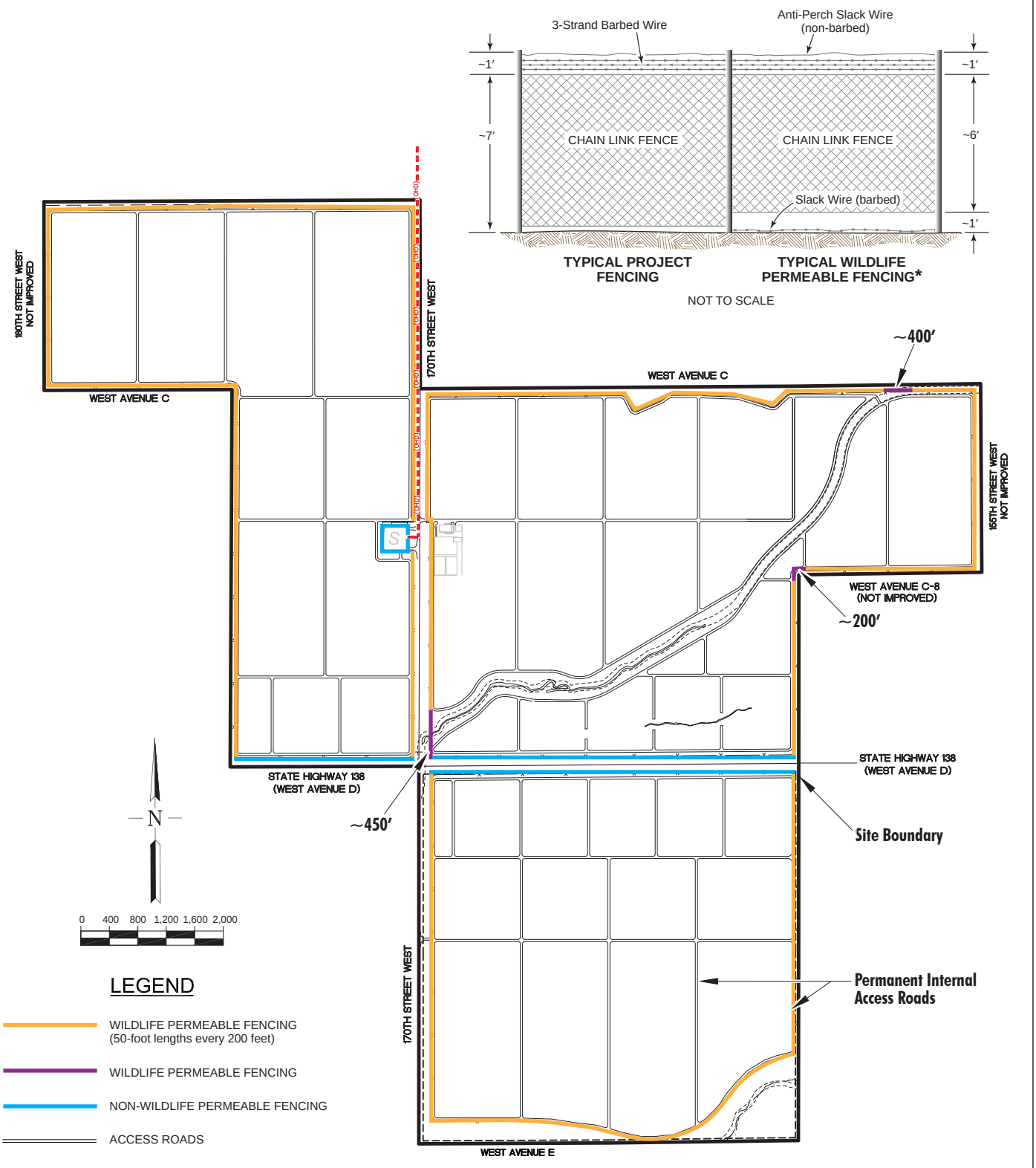
T:\NextLight_AV_EIR\deliverables\AVSR1_EIR\Biology\Fig5_7-8A_VegetationCommunities&DisturbanceAreasAlongTLRouteStudyArea_Sheet2of2.mxd



T:\NextLight_AV_EIR\deliverables\AVSR1_EIRBiology\Fig5_7-8B_VegetationCommunities&PoleLocationsAlongNorthernPortionOfTransmissionRoute.mxd

Source: [1] TriAxis Engineering, Inc., [2] CPUC 2009. **Image Source:** I-cubed Nationwide Prime - Aerials Express (2007-02-15 image date, 0.3m resolution).	**AV Solar Ranch One EIR**	**Figure 5.7-8B.** VEGETATION COMMUNITIES AND POLE LOCATIONS ALONG NORTHERN PORTION OF TRANSMISSION ROUTE	2010

T/Ladd/NextLight/ADEIR#5/Biology/209-023F



***Note:**
Other fence designs that will allow as much or greater wildlife movement may be used in certain areas if needed (e.g., at the intersection of 170th Street West and SR-138 a "break-away" design may be required to accommodate heavy flows in the event of significant flooding).

Source: Psomas and Patch Services Dated 2010 Adapted from Patch Drawing D-5408-2001	**AV Solar Ranch One EIR**	**Figure 5.7-9.** LOCATION OF WILDLIFE-PERMEABLE FENCING	2010

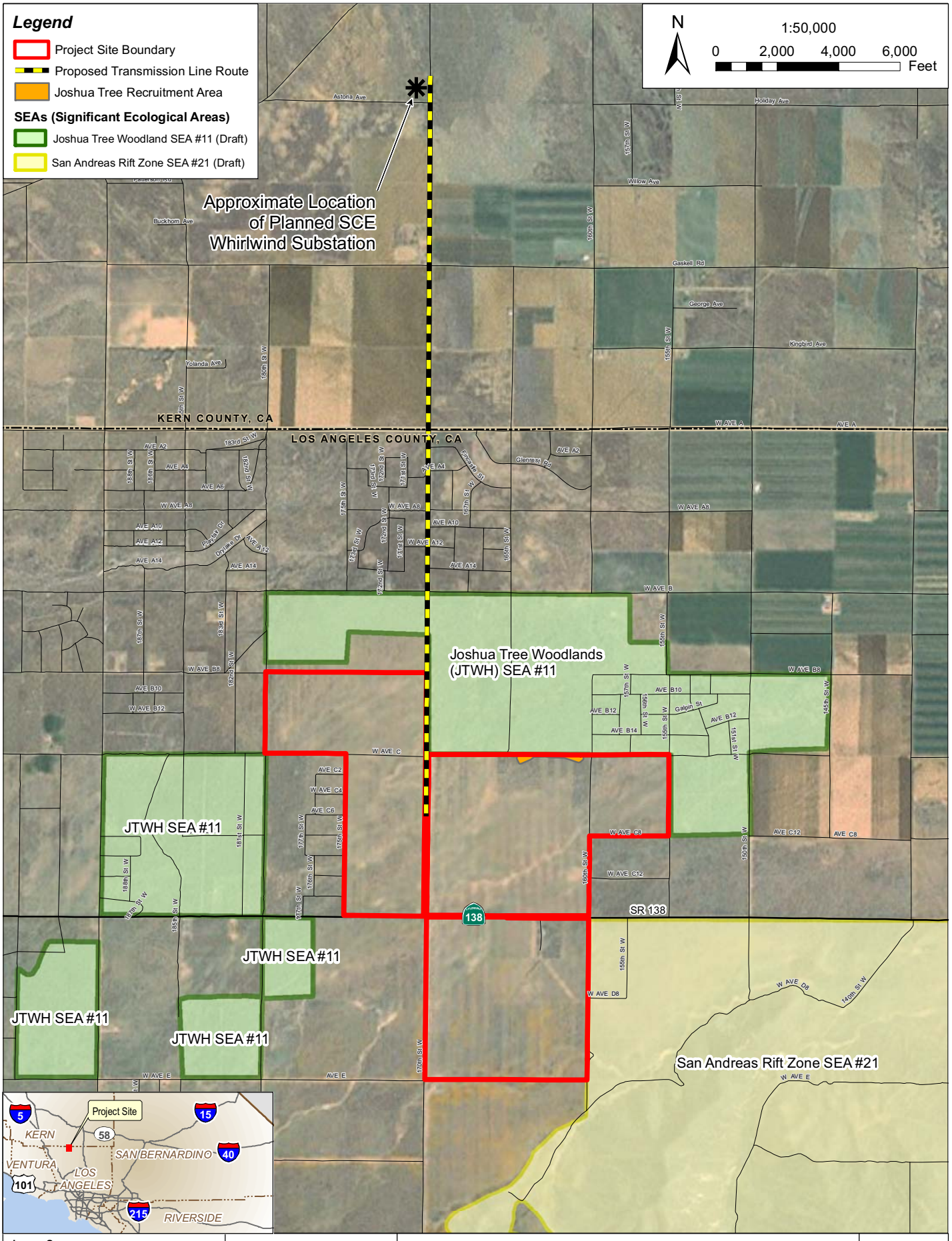


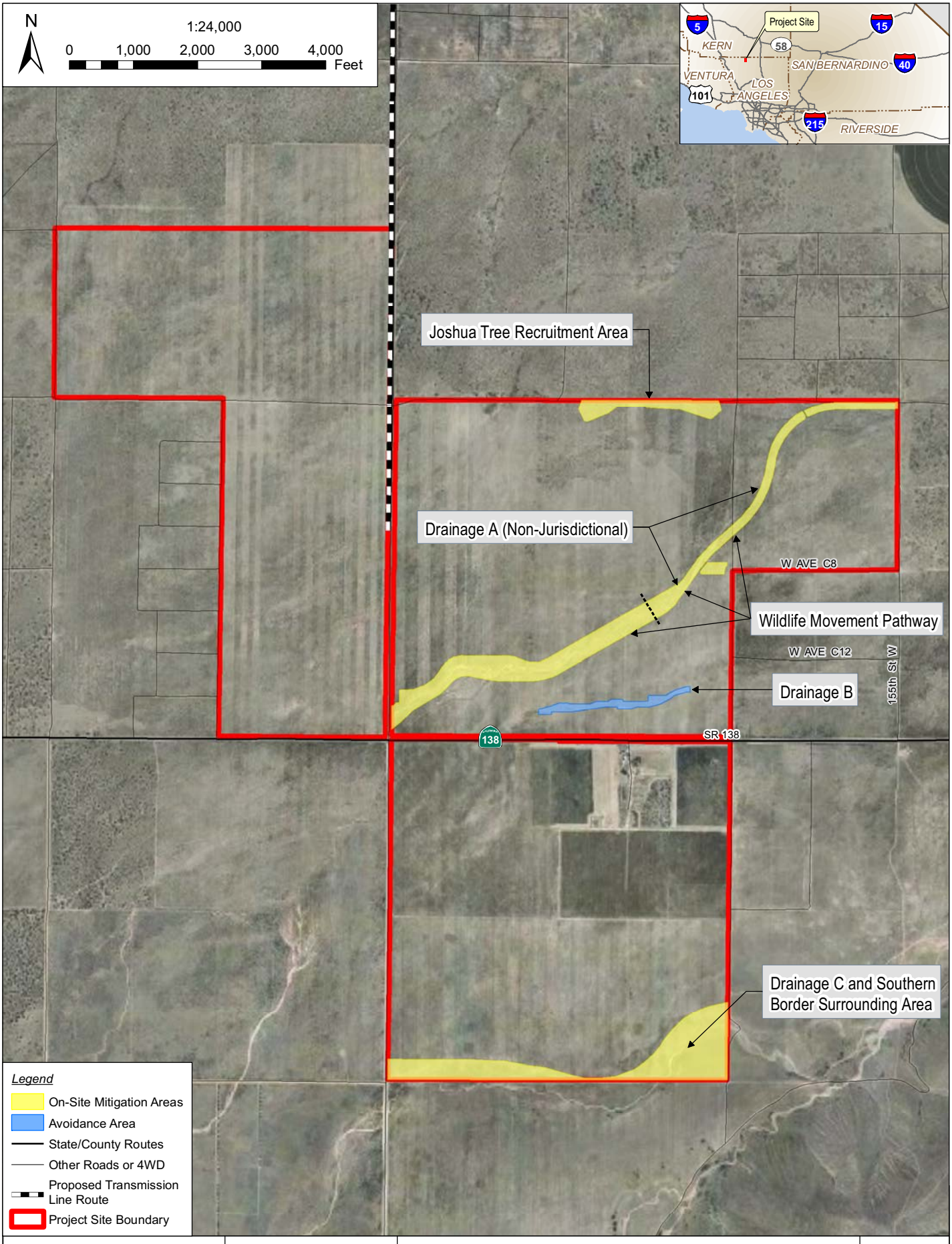
Image Source:
[1] I-cubed Nationwide Prime - Aerials Express (2007-02-15 image date, 0.3m resolution), [2] ESRI StreetMap USA (2007), [3] LA County (2008) Draft General Plan Update Figure 6.3.

AV Solar Ranch One EIR

Figure 5.7-10. LACDRP PROPOSED REVISED SEA BOUNDARIES IN THE PROJECT VICINITY

2010

T:\NextLight_AV_EIR\deliverables\AVSR1_EIR\Biology\Fig5_7-10_Proposed_Revisions_to_Significant_Ecological_Areas.mxd



T:\NextLight_AV_EIR\deliverables\AVSR1_EIR\Biology\Fig5_7-11_On-SiteMitigationAndAvoidance.mxd

Source: [1] I-cubed Nationwide Prime - Aerials Express (2007-02-15 image date, 0.3m resolution), [4] ESRI StreetMap USA (2007).	**AV Solar Ranch One EIR**	**Figure 5.7-11.** ON-SITE MITIGATION AND AVOIDANCE AREAS	2010

5.6 AIR QUALITY

This section describes the regulatory framework, environmental setting, impact significance criteria, and the potential air quality and health impacts associated with the proposed Project. The potential impacts are described, assessed, and mitigation measures are proposed to reduce impacts.

5.6.1 Regulatory Setting

The proposed Project is required to comply with the applicable air quality provisions of the Antelope Valley Air Quality Management District (AVAQMD), California Air Resources Board (CARB), and U.S. Environmental Protection Agency (USEPA). The northern portion of the proposed off-site 230-kV transmission line is located in southern Kern County; thus the applicable provisions of the Kern County Air Pollution Control District (KCAPCD) are also applicable to the transmission line.

5.6.1.1 Federal

The USEPA has issued the National Ambient Air Quality Standards (NAAQS). Pollutants regulated under these standards include ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), respirable particulate matter (PM_{10}), fine particulate matter ($PM_{2.5}$), and sulfur dioxide (SO_2). Table 5.6-1 lists current federal and state ambient air quality standards. Additional information regarding the NAAQS that are relevant to the Project is provided in Section 5.6.2.2. The AVAQMD, KCAPCD, and CARB are the responsible agencies for developing attainment plans to achieve attainment with the NAAQS in the Project region; the USEPA reviews and approves these plans. USEPA has a number of other regulations under the authority of the federal Clean Air Act (such as New Source Review [NSR], and Prevention of Significant Deterioration [PSD], Title V permitting program, etc.). However, none of these regulations apply to this Project because the Project would have no major operational stationary emission sources. The threshold emission standard that would warrant a PSD air quality impact analysis is 250 tons per year of any one pollutant. None of the projected pollutant emissions would reach this threshold. Therefore, a PSD air quality impact analysis of the proposed Project's impacts to the nearest mandatory Class I area is not required.

The USEPA does have on-road and off-road engine emission reduction programs that indirectly affect the Project's emissions through the phasing in of cleaner on-road and off-road equipment engines. Engines that propel on-road and off-road equipment are subject to increasingly stringent emissions standards year after year. Thus, modern cleaner burning equipment could be used for construction activities. In addition, the USEPA together with CARB have established fuel standards for motor gas that reduce pollutant emissions.

The USEPA has pollution limits that if exceeded, may warrant a designation of non-attainment. A non-attainment area is an area considered to have air quality worse than the National Ambient Air Quality Standards as defined in the Clean Air Act Amendments of 1970 (P.L. 91-604, Sec. 109). Non-attainment areas must have and implement a plan to meet the standard, or risk losing some forms of federal financial assistance. An area may be designated a non-attainment area for one pollutant and an attainment area for others.

5.6.1.2 State

CARB has issued a number of California Ambient Air Quality Standards (CAAQS). These standards include pollutants not covered under the NAAQS and also control some pollutants to more stringent levels than in the corresponding NAAQS. Pollutants regulated under these standards include ozone, NO_2, CO, PM_{10}, $PM_{2.5}$, SO_2, lead, sulfates, hydrogen sulfide, vinyl chloride, and visibility reducing particles. The CAAQS standards are listed in Table 5.6-1. Additional information regarding the CAAQS that are relevant to the Project is provided in Section 5.6.2.2.

CARB, like USEPA, also has on-road and off-road engine emission reduction programs that indirectly affect the Project's emissions through the phasing in of cleaner on-road and off-road equipment engines. Additionally, CARB has a Portable Equipment Registration Program that allows owners or operators of portable engines and associated equipment to register their units under a Statewide portable program to operate their equipment (must meet specified program emission requirements) throughout California without having to obtain individual permits from local air districts.

The State recently enacted a new regulation for the reduction of diesel particulate matter (DPM) and criteria pollutant emissions from active fleets of off-road diesel-fueled vehicles (CCR Title 13, Article 4.8, Chapter 9, Section 2449). This regulation provides target emission rates for particulate matter (PM) and oxides of nitrogen (NO_X) emissions from owners of fleets of diesel-fueled off-road vehicles. This regulation applies to equipment fleets of specific sizes and the target emission rates are reduced over time.

5.6.1.3 Local

The proposed Project site is located in the AVAQMD while the proposed off-site transmission line is located in AVAQMD and KCAPCD jurisdictional areas. The local air districts are responsible for planning, implementing attainment strategies, and enforcing federal and State ambient standards within their jurisdictions. The regulations of these agencies are focused on stationary sources and, therefore, are generally not relevant to this Project because the proposed Project has limited stationary sources. However, operation of the proposed concrete batch plant and portable engines to be used during construction for more than 12 months that are larger than 50 horsepower (hp) and that are not registered under

the CARB Portable Equipment Registration Program would need to obtain permits from the applicable local jurisdiction (i.e., AVAQMD). On and off-road mobile sources are regulated by USEPA and CARB fuel and engine standards.

5.6.1.3.1 County of Los Angeles. The Los Angeles County Code (Chapter 12.32.010) requires permits for activities on areas of 2.5 acres or more that may generate harmful dust levels within a defined area of the Antelope Valley. However, the code excludes approved construction activities. The County Agricultural Commissioners office administers the permit program, which is directed at agricultural type projects.

5.6.1.3.2 Antelope Valley Air Quality Management District. The proposed AV Solar Ranch One facility site and the southern portion (1.5 miles) of the off-site transmission line route are situated in the AVAQMD. The construction and operation of the facility would be subject to the prohibitory rules governing dust generation. In addition, some equipment (construction and operations) would require operating permits from the AVAQMD. The applicable rules for this Project would be (AVAQMD 2009):

- AVAQMD Rule 201 – Permit to Construct

  Any person building, altering or replacing any equipment, the use of which may cause the issuance of air contaminants or the use of which may eliminate or reduce or control the issuance of air contaminants, must first obtain authorization for such construction from the AVAQMD. A Permit to Construct (PTC) shall remain in effect until the Permit to Operate (PTO) for the equipment for which the application was filed is granted, denied, or cancelled. The PTC application is evaluated based on the requirements of Regulations XIII, as identified in Rule 1303, to assess if best available control technology, offsets, and/or modeling is required.

- AVAQMD Rule 203 – Permit to Operate

  A person shall not operate or use any equipment, the use of which may cause the issuance of air contaminants, or the use of which may reduce or control the issuance of air contaminants, without first obtaining a written PTO from AVAQMD, or except as provided in Rule 202. The equipment shall not be operated contrary to the conditions specified in the PTO. The Project would comply with this rule by obtaining a permit from the AVAQMD in a timely manner and complying with the stated conditions.

- AVAQMD Rule 401 – Visible Emissions

  A person shall not discharge into the atmosphere, from any single source of emissions whatsoever, any air contaminant for a period or periods aggregating more than three minutes in any one hour which is as dark or darker in shade as that designated as No. 1 on

the Ringelmann Chart, or of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke which is as dark or darker in shade as that designated as No. 1 on the Ringelmann Chart. The Project emission sources will be equipped with Best Available Control Technology (BACT) and combust clean fuels and, consequently, compliance with this rule is expected.

- AVAQMD Rule 402 – Nuisance

  A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health or safety of any such persons or the public or which cause or have a natural tendency to cause injury or damage to business or property. Due to the application of BACT on each emission source and the distance from the emission sources to any potential receptors, compliance with this rule is expected.

- AVAQMD Rule 403 – Fugitive Dust

  The purpose of this rule is to reduce the amount of PM_{10} emitted from significant man-made fugitive dust sources and in an amount sufficient to maintain the NAAQS. The provisions of this rule apply to specified bulk storage, earthmoving, construction and demolition, and man-made conditions resulting in wind erosion.

  Project construction would involve short-term bulk storage of soils, earthmoving, construction and demolition, and man-made conditions that have the potential to cause fugitive dust emissions. The Project operator, or its contractors, would follow the fugitive dust control strategy outlined in a Dust Control Plan that will be prepared for the Project.

  Project operations would involve limited vehicle travel within the solar photovoltaic (PV) array field in order to periodically wash the PV panels, control vegetation and maintain fuel breaks, and maintain and inspect Project facilities. These operational-phase activities have the potential to cause fugitive dust emissions. The owner, or its contractors, would be required to follow the fugitive dust control strategy outlined in the Dust Control Plan that will be prepared for the Project (refer to Section 5.6.5).

- AVAQMD Rule 404 – Particulate Matter – Concentration

  Rule 404 applies to any person who discharges PM emissions into the atmosphere from any single-source operation. The rule limits PM emissions based upon the exhaust flow rate. The fire water pump/emergency generator engines would be subject to and will comply with this rule by using only ultra-low sulfur diesel fuel.

- AVAQMD Rule 405 – Particulate Matter – Emission Rate

  A person shall not discharge into the atmosphere from any source operation, particulate matter in excess of the limits shown in the rule. This rule is generally applied to processes that handle bulk dry materials, and is not generally applied to combustion processes, as there is not "process weight" on which to base the emissions limit.

- AVAQMD Rule 442 – Usage of Solvents

  The rule is a general prohibitory rule that would govern proper usage of solvents and paints. Other source specific rules governing cleaning, painting, and stripping may apply if the construction or operational-phase activities include these actions.

The AVAQMD prepared a list of measures to reduce PM_{10} emissions in 2005 (AVAQMD 2005a) in response to a legislative mandate. Within the published list, the only applicable measures for this Project are fugitive dust control measures, which would be integrated into a fugitive dust control plan for construction and operation of the Project.

5.6.1.3.3 Kern County Air Pollution Control District. During the construction of the northern 2-mile portion of the off-site 230-kV transmission line in Kern County, construction activities would be subject to the following KCAPCD rules.

- KCAPCD Rule 401 – Visible Emissions
- KCAPCD Rule 402 – Fugitive Dust
- KCAPCD Rule 419 – Nuisance

The applicability and content of these regulations are very similar to the aforementioned corresponding AVAQMD rules. The KCAPCD has a list of measures to reduce PM emissions similar to the AVAQMD in order to address legislative mandates. The only applicable measures are fugitive dust control measures that would need to be included in a dust control plan for compliance with existing Rule 402 – Fugitive Dust Emissions. Kern County has also published a list of suggested mitigation measures for controlling emissions at construction sites.

5.6.1.3.4 Southern California Association of Governments. As a regional planning agency, the Southern California Association of Governments SCAG serves as a forum for regional issues relating to transportation, the economy, community development, and the environment. It reviews projects to analyze their impacts and consistency with SCAG's regional planning efforts. Although it is not an air quality management agency, it is responsible for assisting in several air quality and regional transportation planning issues. Pursuant to section 176(c) of the 1990 amendments to the Clean Air Act (CAA), it is

responsible for providing current population, employment, travel, and congestion projections for regional air quality planning efforts. The City of Lancaster, Palmdale, and the County of Los Angeles are representative members of SCAG.

5.6.1.4 Air Quality Attainment/Management Plan Conformity

5.6.1.4.1 Introduction. The proposed Project is located in the Mojave Desert Air Basin (MDAB) under the jurisdiction of the AVAQMD and the KCAPCD. Conformity with the air quality attainment plans for each local air basin/district is discussed below.

Based on the current PM_{10} and O_3 non-attainment status for the areas overseen by the AVAQMD and the KCAPCD, Air Quality Management Plans (AQMPs) and air quality attainment plans (AQAPs) have been developed by both air districts. The AVAQMD developed a 2004 and 2008 O_3 Attainment Plan (state and federal attainment) for attainment of the federal and state standards. The 2004 O_3 Attainment Plan was aimed at the state 1-hour standard, while the 2008 Plan is directed at the federal 8-hour standard. The AVAQMD has also prepared a list of measures to reduce PM emissions to meet state planning requirements under the California Health and Safety Code (H&SC) Section 40923. The KCAPCD developed a 1993 O_3 Attainment Plan (state and federal attainment) and submits implementation progress reports to CARB on an annual basis. The KCAPCD is the latest approved plan is the 2003 Ozone Attainment Demonstration, Maintenance Plan and Redesignation Request. KCAPCD has also published PM emissions control measures under the same H&SC.

5.6.1.4.2 Ozone. The AVAQMD 2008 O_3 Attainment Plan (AVAQMD 2008a) does not propose any new control measures beyond those identified in the former South Coast Air Quality Management District (SCAQMD) 1997 AQMP, which included the Antelope Valley prior to its split into a separate jurisdiction in 1997. Of the control measures presented in the 1997 AQMP, the only measure that is relevant to the proposed Project is the federally implemented measure that focuses on internal combustion engine exhaust. This measure was based on USEPA rulemaking focused on a strategy to regulate emissions from non-road internal combustion engines greater than or equal to 50 hp. These non-road emissions are now regulated under the State Implementation Plan (SIP) as CARB-implemented programs for gas and diesel engines (including construction equipment). Therefore, the proposed Project would be consistent with the O_3 Attainment Plan for the Antelope Valley.

KCAPCD's California Clean Air Act O_3 AQAP was approved by CARB on February 18, 1993. Reduced ambient O_3 levels have occurred with implementation of retrofit controls for VOCs and NO_X stationary sources in eastern Kern County. The non-attainment status of the O_3 CAAQS in Kern County is also influenced by pollutants transported from upwind air basins.

In 1995, KCAPCD utilized California Health and Safety Code Section 40925(b) to modify its AQAP (i.e., delete control measures inappropriate for an area overwhelmingly impacted by transport). KCAPCD's 1994 Federal Clean Air Act Amendments O_3 Attainment Plan projected attainment with NAAQS by 1999; Mojave monitoring data from 1999–2003 show the federal O_3 NAAQS of 0.12 parts per million (ppm) has been attained. Consequently, in 2004, KCAPCD (also known as Eastern Kern County) has been redesignated to attainment for the federal 1-hour O_3 NAAQS. This ambient standard was an historical basis for air quality. However, attainment of the O_3 CAAQS and the new O_3 8-hour NAAQS of 0.075 ppm (which replaced the historical 1-hour standard) has yet not occurred. Due to the fact that O_3 CAAQS exceedances in the KCAPCD are caused by transported pollutants, Section 40925(c) (comprehensive plan revision) does not apply to KCAPCD, but does apply to upwind districts.

5.6.2 Environmental Setting

The proposed Project solar PV site is located along SR-138 west of the community of Antelope Acres, in an unincorporated area of Los Angeles County (refer to Figure 5.6-1). The Project site is located approximately 15 miles northwest of the downtown Lancaster and approximately 1.5 miles south of the Kern County line. This section provides a description of the climatic conditions in the local area, the existing ambient air quality of the regional area, the air emissions inventory within the AVAQMD and a description of applicable air pollutants for the Project and in the Project area.

5.6.2.1 Project Site

The Project site consists of approximately 2,100 acres of land that was previously used for agricultural activities. The site and approximately 1.5 miles of the off-site transmission line route are located within the jurisdiction of the AVAQMD. Approximately 2 miles of the transmission line route are located within the KCAPCD. However, both districts are within the larger MDAB. This section describes the climate, meteorology, and current air quality of the MDAB. Figure 5.6-1 shows the location of the proposed Project along with the local air quality jurisdictional boundaries.

The background air quality conditions summarized herein were determined through a review of criteria pollutant attainment/non-attainment designation information and ambient criteria pollutant concentration data sources that included, but were not limited to, the following:

- USEPA Greenbook data (2008)
- State of California, Air Resources Board data (2008)
- Antelope Valley Air Quality Management District data (2004, 2008)

- USEPA Office of Air and Radiation (2008)

Data presented in this section are the most recent available data from the above sources.

The MDAB covers more than 20,000 square miles and encompasses the majority of California's high desert with typical hot, dry summers and cold winters with little precipitation. It is bounded by the San Gabriel and San Bernardino mountains to the south, which serve as a boundary separating the MDAB from the South Coast Air Basin (SCAB). The Tehachapi Mountains constitute the northwest boundary separating the MDAB from the San Joaquin Air Basin (SJAB). There are approximately 494,000 persons residing within the MDAB (U.S. Census Bureau 2003). Because it is a desert environment consisting of flat terrain, high wind conditions can cause the generation of a substantial amount of fugitive dust (i.e., particulate matter). Air quality in the MDAB is also heavily influenced by airborne pollutants transported into the region from the much more heavily populated and industrial areas within the SCAB under the jurisdiction of the SCAQMD.

5.6.2.2 Existing Air Quality

The USEPA, CARB, and the local air districts classify an area as attainment, unclassified, or non-attainment, depending on whether or not the monitored ambient air quality data show compliance, insufficient data available, or non-compliance with the ambient air quality standards, respectively. The NAAQS and CAAQS are provided in Table 5.6-1. In the AVAQMD and KCAPCD, ozone is designated as non-attainment at the state and federal level, and PM_{10} is also in non-attainment under state standards. All other emissions are in attainment or unclassifiable. Table 5.6-2 summarizes the federal and State attainment status of criteria pollutants for the AVAQMD and the KCAPCD.

Non-attainment areas are defined as any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the national primary or secondary ambient air quality standard for the pollutant. Non-attainment areas can be classified as extreme, severe, serious, or moderate depending on how much the pollutant level exceeds the standard. Unclassifiable areas cannot be classified on the basis of available information as meeting or not meeting the national primary or secondary ambient air quality standard for the pollutant.

The closest air quality monitoring stations to the Project site are: the Lancaster Division Street Monitoring Station, located at 43301 Division Street in Lancaster; the Mojave Poole Street Station located at 923 Poole Street in Mojave; and the Victorville Station located at 14306 Park Avenue in Victorville. The AVAQMD operates the Lancaster Division Street Station, KCAPCD operates the Mojave Poole Street Station, and the Mojave Desert Air Quality Management District (MDAQMD) operates the Victorville Station. The MDAQMD provides the best available data for the air basin, although it does not have jurisdiction over

the site. Table 5.6-3 summarizes the locations of these monitoring stations, the pollutants monitored, and the approximate distances and directions from the Project site. The locations of the Lancaster and Mojave Poole stations are shown on Figure 5.6-1.

5.6.2.2.1 Existing Ambient Air Quality Data. Tables 5.6-4 through 5.6-9 provide summaries of the most recent ambient pollutant concentrations collected at the Lancaster, Mojave and/or Victorville monitoring stations. These stations are the closest stations within the MDAB to the project site. The tables also indicate the number of times that the NAAQS and the CAAQS were exceeded for each parameter during the years 2006 through 2008. As shown in the tables, air quality in the MDAB has exceeded state and/or federal standards for O_3 and PM_{10} within the past three years. The air basin is currently designated as a non-attainment area for both PM_{10} and O_3 (1-hour and 8-hour standard) according to CAAQS and NAAQS (8 hour only). However, ambient air quality standards for CO and NO_2 have not been exceeded. Monitoring stations for lead and sulfate are significantly further away from the Project site; therefore, data for these pollutants were not included. This air quality analysis focuses primarily on the criteria air pollutants identified and described below.

5.6.2.2.2 Ozone. O_3 is a colorless gas that has a pungent odor and causes eye and lung irritation, reduces visibility, and damages crops. O_3 is a primary constituent of smog and is formed in the atmosphere in the presence of sunlight by a series of chemical reactions involving NO_X and reactive organic gases (ROG). Volatile organic compounds (VOC) and ROG describe the same category of pollutants and are used interchangeably throughout this section. Because these reactions occur on a regional scale in the atmosphere, O_3 is considered a regional air pollutant. Industrial fuel combustion and motor vehicles are the primary sources of NO_X and ROG.

5.6.2.2.3 Particulate Matter. PM is generally composed of airborne particles, such as dust, soot, aerosols, fumes, and mists. Of particular concern is inhalable, respirable PM (i.e., PM_{10}). A subgroup of these particulates is fine particulates (i.e., particles with aerodynamic diameter less than 2.5 microns, or $PM_{2.5}$), which typically have very different characteristics and potential health effects from those of coarse particulates (particles with aerodynamic diameter between 2.5 to 10 microns). Coarse particulates are generated by sources such as windblown dust, agricultural fields, and dust from vehicular traffic on unpaved roads. $PM_{2.5}$ is typically emitted from fuel combustion activities such as operation of industrial and manufacturing process equipment, vehicle exhaust, and residential wood-burning stoves and fireplaces. $PM_{2.5}$ is also formed in the atmosphere when gases such as SO_2, NO_X, and VOC emitted by combustion activities are transformed into particles by chemical reactions in the air. Inhalation of PM_{10} and $PM_{2.5}$ affects breathing and the respiratory system, and in particular, can damage lung tissue and contribute to cancer and premature death. There are separate standards for $PM_{2.5}$ because these fine particles can penetrate deeper into the respiratory tract and cause their own unique adverse health effects.

5.6.2.2.4 Carbon Monoxide. CO is an odorless, colorless gas that can impair the transport of oxygen in the bloodstream, aggravate cardiovascular disease and cause fatigue, headache, confusion, and dizziness. CO forms through incomplete combustion of fuels in vehicles, wood stoves, industrial operations, and fireplaces. Vehicular exhaust is a major source of CO. CO tends to dissipate rapidly into the atmosphere and consequently is generally a concern at the local level, particularly near major road intersections.

5.6.2.2.5 Nitrogen Dioxide. NO_2 is a brownish, highly reactive gas that can irritate the lungs, cause pneumonia, and lower the resistance to respiratory infections. NO_X, which includes NO_2, is a key precursor to O_3 and acid rain. NO_X forms when fuel is burned at high temperatures, primarily in vehicles and stationary fuel combustion sources such as electric utility and industrial boilers.

5.6.2.2.6 Sulfur Dioxide. SO_2 is a colorless acidic gas with a strong odor. High concentrations of SO_2 affect breathing and may aggravate existing respiratory and cardiovascular disease. SO_2 is also a primary contributor to acid deposition, which causes acidification of lakes and streams and can damage trees, crops, building materials, and statues. In addition, sulfur compounds in the air can contribute to visibility impairment. The major source category for SO_2 is fossil fuel burning equipment.

5.6.2.3 Other Pollutants of Concern

5.6.2.3.1 Toxic Air Contaminants. Toxic Air Contaminants (TACs) have the potential to cause health effects such as increased risk of contracting cancer. TACs are considered separately from the criteria pollutants in the regulatory process. Ambient air quality standards (AAQS) have not been set for TACs because ambient TAC concentrations vary from area to area and are dependent on the type of emission sources within the region. Therefore, TACs are typically regulated on a source-by source basis (e.g., type and amount of TACs emitted, proximity to nearest sensitive receptors [hospitals, school, daycare, residences]). Motor vehicles also emit TACs, and the amount is dependent on travel speed, type of fuel (e.g., diesel, gasoline), type of emissions control, and engine size. The pollutant of primary concern for diesel fuel internal combustion engines (e.g., non-road vehicles) is diesel particulate matter, which has been identified as a carcinogenic TAC by California. Stationary sources with these engine sources are subject to significant state-wide risk reduction measures.

5.6.2.3.2 Naturally Occurring Asbestos. This discussion is limited to naturally occurring asbestos (NOA) in accordance with the *Memorandum Addressing Naturally Occurring Asbestos in CEQA Documents* (Governor's Office of Planning and Research 2000). The purpose of the discussion is to establish the impact of NOA entrainment during construction. Asbestos is a naturally occurring mineral distinguished from other minerals by the fact that

its crystals form into long, thin fibers. The main source of NOA is ultramafic (i.e., silica poor) rocks that include serpentine. The fibers, when airborne, may enter the lungs and alveoli and remain there. When the fibers reach the alveoli, white blood cells attack them to try to remove them from the body. However, the fibers are not easily removed and eventually scarring of the lung tissue typically ensues. This scarring is called asbestosis and it leads to greatly diminished breathing capacity. Another result of asbestos exposure is lung cancer and mesothelioma. Both of these diseases are serious and frequently fatal. For these reasons, use of asbestos is limited and highly regulated. Identification of NOA in an area where soil may be disturbed (e.g., construction or demolition activities) is important. The California Geological Survey (CGS) has published a map of the state locating all areas where ultramafic rocks are present (CGS 2000). This map indicates there are no ultramafic rocks in the vicinity of the Project location. Hence, the possibility of NOA becoming airborne with dust during construction is minimal. The need for minimizing NOA is limited to the control measures to be implemented for fugitive dust.

5.6.2.3.3 Valley Fever. Valley Fever or coccidioidomycosis is caused by the microscopic fungus coccidioides immitis (*C. immitis*), which grows in arid soil in parts of Los Angeles and Kern counties and other parts of America. Infection occurs when the spores of the fungus become airborne and are inhaled. The fungal spores become airborne when contaminated soil is disturbed by human activities, such as construction and agricultural activities, and natural phenomena, such as wind storms, dust storms, and earthquakes.

About 60 percent of infected persons have no symptoms. The remainder develops flu-like symptoms that can last for a month and tiredness that can sometimes last for longer than a few weeks. A small percentage of infected persons (<1 percent) can develop disseminated disease that spreads outside the lungs to the brain, bone, and skin (disseminated disease). Without proper treatment, Valley Fever can lead to severe pneumonia, meningitis, and even death. Symptoms may appear between 1 to 4 weeks after exposure (LACDPH 2004).

Diagnosis of Valley Fever is conducted through a sample of blood, other body fluid or biopsy of affected tissue. Valley Fever is treatable with anti-fungal medicines, and is not contagious. Once recovered from the disease, the individual is protected against further infection. Persons at highest risk from exposure are those with compromised immune systems, such as those with human immunodeficiency virus (HIV), and those with chronic pulmonary disease. Farmers, construction workers, and others who engage in activities that disturb the soil are at highest risk for Valley Fever. Infants, pregnant women, diabetics, people of African, Asian, Latino or Filipino descent, and the elderly may be at increased risk for disseminated disease. Historically, people at risk for infection are individuals not already immune to the disease and whose jobs involve extensive contact with soil dust, such as construction or agricultural workers and archaeologists (LACDPH 2004). The disease also has been known to infect animals. Infections occur more frequently in summer.

Valley Fever cases may be caused due to soils containing fungal spores that become disturbed by wind erosion, vehicular transportation, construction, or farming. Even natural phenomena, such as earthquakes or wildfires may disturb soils containing the fungi, where high winds, such as Santa Anas, may disperse the small infectious particles miles from their place of origin (Cavenaugh 2004).

It is thought that during drought years, the number of organisms competing with *C. immitis* decreases, and the *C. immitis* remains alive, but dormant. When rain finally occurs, the arthrocondia germinate and multiply more than usual because of a decreased number of other competing organisms. Later, the soil dries out in the summer and fall, and the fungi can become airborne and potentially infectious (Kirkland et al. 1996).

Persons at risk for Valley Fever should avoid exposure to dust and dry soil in areas where Valley Fever is common. Areas with high Valley Fever rates are called hyper-endemic. Approximately 10 to 50 percent of people living in endemic disease regions are seropositive and considered immune. In any given year, about 3 percent of people who live in an area where coccidiodomycosis is common will develop an infection (LACDPH 2004).

5.6.2.4 Meteorological Conditions

Local and regional meteorological conditions and topography affect the transport and dispersion of airborne pollutants and determine the locations that are impacted by pollutant emissions from specific sources. The Project site is located in the western Mojave Desert which is classified as a "high desert." It is a transition between the "hot" Sonoran Desert to the south and the "cold" Great Basin Desert to the north. Characteristic of a desert climate, the Mojave Desert has extreme daily temperature changes, low annual precipitation, strong seasonal winds, and mostly clear skies.

The climate of northern Los Angeles County is characterized by hot, dry summers and mild to cold winters with seasonally heavy precipitation that occurs primarily during the winter months. Summer typically has clear skies, high temperatures, and low humidity. A monthly climate summary for Lancaster, California, was selected to characterize the climate of the study area because it contains the nearest meteorological monitoring site in the AVAQMD.

The frequent presence of a thermal low pressure area above the Mojave Desert promotes atmospheric transport from the Los Angeles Basin. The most significant large-scale phenomena affecting air quality in the Project area are the transport winds from the northwest and southwest. These winds are responsible for bringing ozone and other pollutants through the mountain passes from the Los Angeles Basin (Cajon and Soledad Passes) and the San Joaquin Valley (Tehachapi Pass). Pollutant transport into the MDAB is the primary reason for the periods of Federal and California ozone standard violations.

Climate data was obtained from the National Oceanic and Atmospheric Agency (NOAA) National Climatic Data Center (NCDC) (NCDC 2009). The Project site is located between the Sandburg (Station 72383023187) and Lancaster Gen Wm Fox Field (Station 72381603159). Data for the Mojave Station (Station 72295399999) is also included. Wind frequency distribution charts (wind roses) and maps showing the location of these weather stations are presented in Appendix D.5 of this EIR. The Appendix provides wind data by its speed and direction over the course of the period from 1999 through 2008 for the Sandburg, Lancaster, and Mojave stations. Winds from the Sandburg station are predominantly out of the northwest and southwest, and winds measured at the Lancaster and Mojave stations were strongest primarily out of the southwest. Northwest winds would transport airborne pollutants generated at the Project site toward Lancaster about 15 miles away, while southwest winds would transport site emissions toward Rosamond, about 13 miles away. However, populations are generally very sparse for considerable distances in both directions.

5.6.2.4.1 Temperature. Temperatures in the Project vicinity can be very hot during the summer months and very cold during the winter months. Table 5.6-10 summarizes the mean temperature of each month and an annual average for three nearby cities, Sandburg, Lancaster, and Mojave. Average temperatures in winter months are in the mid-forties to low fifties, average temperatures in the summer range from the high sixties to the high eighties.

5.6.2.4.2 Precipitation. Average annual precipitation in the Project area, based on Lancaster records, is 7.9 inches with approximately 74 percent of the precipitation occurring in the months between December and March.

5.6.2.5 Valley Fever in California and the Project Area

According to the Center of Disease Control, Morbidity and Mortality Weekly Report (Center of Disease Control 2009), Valley Fever incidences have increased in California, where from 2000-2006 the incidence rate tripled. Most cases of Valley Fever occur within the San Joaquin Valley, and in Kern County (KCCDC 2009). However, northern parts of Los Angeles County, including the Project area, are within the Valley Fever endemic area (Pappagianis and Van Kekerix 2002). Matlof *et al* states that experience indicates that certain areas of Los Angeles County are endemic foci for *C. immitis*. These areas include the San Fernando Valley and the sparsely populated northern and western regions of Los Angeles County (Matlof et al. 1970).

Areas such as the Antelope Valley have low annual precipitation, with a short rainy, mild season occurring during the winter and long hot and dry summers. These are climate conditions that exist in all suspected endemic Valley Fever areas of the United States. Coastal and central areas of Los Angeles County generally have summer temperatures that are 5–15°F cooler than northern parts of the county, and also often have a prevailing marine

layer and consequently higher relative humidities (Matlof et al. 1970). The Antelope Valley area has large, open fields, agricultural and mining activity, less urbanization, lower humidities, and higher temperatures compared to the rest of the Los Angeles County area, making the area more susceptible to windblown dust and Valley Fever.

Hospitalizations for coccidiodomycosis are common in endemic areas of California. From 1997 to 2002, the frequency of hospitalization for coccidioidomycosis in California was 3.7 per 100,000 residents per year. Kern, Los Angeles, and San Diego counties had the highest total number of hospitalizations and together accounted for 47 percent of all hospitalizations due to coccidiodomycosis in the state of California during this time period. There were 417 deaths from 1997 to 2002, resulting in a mortality rate of 2.1 per 1 million California residents annually. Deaths from coccidioidomycosis average about 70 per year statewide (Flaherman et al. 2007).

In 2008, Valley Fever incidences were 14.2 per 100,000 persons in the Antelope Valley, compared to the rest of Los Angeles County where Valley Fever incidences were 2.33 per 100,000 persons (Antelope Valley Partners for Health 2009).

Adjacent to the proposed Project area, much of the land is zoned for agricultural use. The Project site is not currently active agricultural land, but agricultural activities are ongoing in nearby areas. Dust from tilled agricultural land and off-road vehicles contribute to the current level of background dust near the site. The majority of dust in the region is generated from agricultural and off-road activities and wind storms. High wind episodes, when the wind speed is greater than 25 mph occur approximately 5 percent of the time at the Poppy Park Remote Automated Weather Station (RAWS) just east of the Project site. The region is non-attainment for particulate matter, with the majority of these emissions occurring in the form of dust. At present, the local population is exposed to significant levels of dust, and the dust in the region is believed to contain the *C. immitis* fungi, thus the local population is most likely exposed to *C. immitis* fungi (i.e., Valley Fever).

5.6.2.6 Existing Air Pollutant Emissions in Project Area

The existing emissions in the AVAQMD have been quantified for air quality planning and future regulatory action. The emissions inventory presented in Table 5.6-11 provides the delineation of area sources, mobile sources, and stationary sources, which includes industrial processes, and fuel combustion. Area-wide sources are stationary sources of pollution (e.g., water heaters, gas furnaces, fireplaces, and residential wood stoves) that are typically associated with homes and non-industrial sources. A Stationary source is a non-mobile structure, building, facility, equipment installation or operation. Examples include oil production facilities, industrial coating operations, rock crushing facilities, and factories that use large amounts of solvents. A mobile source is a fossil fueled source of air pollution such

as automobiles, motorcycles, trucks, buses, off-road vehicles, boats and airplanes. More detailed information is provided in Appendix D of this EIR.

Review of Table 5.6-11 shows that mobile sources contribute the majority of district-wide emissions totals of ROG and NO_X, both of which are ozone precursors. Mineral processes, unpaved roads, and construction/demolition activities contribute the largest fraction to the PM_{10} and $PM_{2.5}$ emissions in the district. Electric utilities contribute an insignificant fraction of the emissions for all pollutants. There are currently no large point emission sources in the vicinity of the Project site. Edwards Air Force Base is a large spatial collection of emissions sources, north of Lancaster, that has several permitted sources in AVAQMD and KCAPCD.

Mobile sources emissions within AVAQMD of ozone precursors such as ROG and NO_X make up more than 70 percent of the total district-wide emissions inventory of ozone precursors. Mobile sources also contribute 90 percent of the total CO emissions in the AVAQMD. Non-stationary sources (e.g., farming, construction, fires, and road dust) make up the majority of particulate matter emissions in the AVAQMD. The natural sources emissions within the AVAQMD are approximately 30 percent of the total anthropogenic emissions of ROG in the AVAQMD. More detailed information of the AVAQMD emissions inventory and natural sources of ROG emissions in the AVAQMD are presented in Appendix D.

5.6.3 Project Impacts

Section 5.6.3.1 through 5.6.3.3 provide background information on the air quality impact assessment criteria, methodology, and quantification of emissions. Project-specific impacts are assessed relative to established significance thresholds in Section 5.6.3.4.

5.6.3.1 Methodology and Significance Criteria

The Los Angeles County Planning Department has established CEQA significance thresholds. The Los Angeles County Planning Department's "Environmental Checklist" for the proposed Project (see Appendix A of EIR) indicates that impacts related to the AV Solar Ranch One Project are considered to be potentially significant if the proposed Project would:

- Exceed the State's criteria for regional significance (generally [a] 500 dwelling units for residential uses or [b] 40 gross acres, 650,000 square feet of floor area or 1,000 employees for non-residential uses)
- Be considered a sensitive use (schools, hospitals, parks) and located near a freeway or heavy industrial use
- Increase local emissions to a significant extent due to increased traffic congestion or use of a parking structure or exceed AQMD thresholds of potential significance

- Generate or be in close proximity to sources that create obnoxious odors, dust, and/or hazardous emissions
- Conflict with or obstruct implementation of the applicable air quality plan
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under applicable federal or state ambient air quality standard (including release emissions which exceed quantitative thresholds for ozone precursors)

In addition, the AVAQMD and KCAPCD have separate significance criteria for assessing air quality impacts. KCAPCD's significance criteria are very similar to the AVAQMD criteria. Based on these criteria, a project would be considered significant if it:

1) Generates total emissions (direct and indirect) exceeding the thresholds given in AVAQMD's CEQA guidance document (AVAQMD 2005b. These thresholds are presented herein in Table 5.6-12.
2) Generates a violation of any ambient air quality standard when added to the local background.
3) Does not conform with the applicable attainment or maintenance plan(s).
4) Exposes sensitive receptors to substantial pollutant concentrations, including those resulting in a cancer risk greater than or equal to 1 in a million and/or a Hazard Index (HI) (non-cancerous) greater than or equal to 0.1 (note: the KCAPCD cites a similar risk notification threshold).

The CEQA guidance document states that thresholds 2, 3, and 4 are not applicable to all projects and that the use of the numerical significance thresholds is sufficient. The AVAQMD reiterated the acceptability of evaluating potential Project impacts based on use of threshold 1 (refer to Table 5.6-12) during the EIR Notice of Preparation phase of this project and in subsequent correspondence (DeSalvio 2009 and 2010). In addition, the AVAQMD identified that for a multiyear continuous non-phased construction project, total emissions of the construction project should be compared to cumulative emissions thresholds based on a prorated annual emissions threshold for the project duration. In other words, the AVAQMD significance threshold for a 38-month construction project is the annual emissions threshold summed for three years (36 months) plus the daily significance threshold for the number of working days in the remaining 2 months. The proposed Project is a non-phased construction project and therefore maximum daily emissions thresholds are not applicable.

5.6.3.2 Quantification of Emissions

Project impacts to air quality are assessed based on criteria pollutant emission estimates for the construction and operational phases. This allows direct comparisons of these emissions to the aforementioned numerical significance thresholds presented in Table 5.6-12. Emissions estimates are based on activity levels provided by the Applicant (refer to Section 4.0 and Appendix H), as well as established emission factors approved by regulatory agencies. Appendix D of this EIR contains information on methodologies used to calculate construction and operation emissions generated by the Project and what assumptions were used. Section D.2 in Appendix D presents construction emission calculations and summary tables for the proposed 8-10 megawatt (MW) per month pile foundation scenario, while Section D.3 presents construction emission calculations for the optional concrete ballast foundation construction scenario. Both construction scenarios would occur over a period of approximately 38 months. Peak daily, annual, and overall construction emissions would be lower for the concrete ballast foundation construction scenario than those calculated for the pile foundation scenario.

The construction emissions associated with the driven-pile foundation scenario were determined to represent the worst-case for air quality. There are 12 distinct Project component construction activities for the ballast and pile foundation cases within the 38-month duration of construction. These are as follows:

- 230-kV transmission line
- High voltage substation
- Medium voltage substation/infrastructure
- Operations and maintenance facility
- Drainage sheet pile
- Raw water supply pipeline
- Solar Fields 1, 2, 3, 4, 5, and 6

Each of these Project components requires a different set of specialized construction equipment. The developments of the solar fields have unique methods of construction depending on the foundation type. If the panels are installed with concrete ballast foundations, then the construction of the fields are assumed to require a concrete batch plant, material supply transport (sand, gravel, and cement) and installation of motors and tracker linkages. Pile-driven foundations would not require concrete but rather metal piles driven into the ground using vibratory hammers and generators. In this case, the need for a concrete batch plant would be negated and all concrete would be made at local transit mix plants and trucked in using concrete mix trucks.

An analysis was conducted to review the difference in emissions between the two installation methods, assuming the first six activities listed (i.e., all but Solar Fields 1–6) were not affected. It was found that the worst case for total construction emissions (on-site) would be the pile foundation method. When mobile sources (off-site) were included, the difference was less; but the pile driving method resulted in higher emissions for all pollutants in total (off-site and on-site). The quantification of construction emissions and discussion of construction-related impacts in this analysis included all the listed construction activities for both the pile-driven foundation and concrete ballast foundation scenarios.

Section D.4 in Appendix D presents the operational phase emissions calculations. The sources would include stationary sources and mobile sources. Mobile sources would include workforce commuting and material deliveries. Once the proposed AV Solar Ranch One Project was operational and producing solar energy, the Project would reduce greenhouse gas and criteria pollutant emissions relative to traditional fossil fuel generation at an equivalent electrical output. Refer to Section 5.6.3.4.8 on Indirect Emissions as well as Tables 5.6-19 and 5.17-3 for the calculated quantity of potential emission avoidance. Calculations are provided in Section D.4 (Operational Phase Emission Calculations).

5.6.3.2.1 Development of Construction Emissions. The four source categories included in the construction emissions estimates include non-road engine exhaust (i.e., on-site construction equipment), construction-related fugitive dust, concrete batch plant sources, and mobile sources both on-site and off-site. Emissions from on-site non-road equipment were quantified for each month of the construction effort based on the monthly activity schedule and the non-road equipment spread. Maximum daily emissions for each month were based on the construction schedule in the Project Description (Section 4.0; Figure 4.4-13). Exhaust emission factors for this equipment were obtained from the CARB OFFROAD and EMFAC software. The estimates for off-site mobile sources were based on the estimated workforce for each month and the peak number of daily truck deliveries for construction.

The concrete batch plant emissions were estimated using emissions factors from USEPA and CARB. The total emissions of the batch plant are directly related to the mass of concrete mixed. Because most portable batch plants tend to have the same general configuration, reasonably available control technologies for this type of equipment were assumed.

The fugitive dust emissions were estimated from the monthly disturbed acreages per activity and maximum estimated cut-and-fill volumes. Emission factors from the URBEMIS 2007 software (Jones and Stokes 2008) based on USEPA studies were applied to the disturbance acreages and cut-and-fill volumes in order to quantify fugitive dust emissions. The disturbed acreage is estimated to be approximately 980 acres for both the pile and ballast foundation construction scenarios. Cut-and-fill volumes listed on Figure 4.4-12 and Table 4.4-1

(grading, excavations, trenching, etc.) were assumed to be proportional and constant across 36 months of the overall 38-month construction schedule.

The emissions for all source categories were summed for each month of the proposed 38-month construction period, which in turn were summed to obtain total construction-phase emissions.

If a concrete batch plant is utilized at the site, it is assumed it would be in use for approximately 34 months. Because the batch plant would be present at the site for more than 12 months, AVAQMD would require a permit to operate including compliance with best available control technology standards. The emission estimates for the batch plant assumed this basis for quantification.

As part of its fugitive dust control plan development, the Project would incorporate watering (e.g., three times a day or as necessary to prevent off-site dust plumes), operational controls, and/or the use of soil palliatives/dust suppressants. The Project would utilize up to an estimated 114 acre feet of water per year from on-site wells for dust control during construction. The quantification has assumed that such watering and palliatives would provide 84 percent control of PM_{10} and $PM_{2.5}$ emissions from fugitive dust sources. This control efficiency was derived from specific factors within the environmental management software URBEMIS 2007 (Version 9.2.4). This factor is an input to the software only and is used in conjunction with the monthly disturbed acreage estimates to calculate PM emissions. Control efficiency of cut-and-fill activities was estimated at 61 percent based on watering three times per day. Appendix D of this EIR provides the factors used and the specific month-by-month calculations for fugitive dust emissions.

The specific level of NO_X control that would exist for a fleet of non-road equipment will not be known with certainty until a construction contractor is selected. Fleet owners must calculate the fleet average emissions of NO_X every year to show progress towards compliance with the SIP required measures of non-road equipment improvement over time. In other words, the equipment with older engines (known as Tier 1) must be replaced over time so that the fleet approaches the emission characteristics of new engines (Tier 3 or 4). The emissions calculated for the non-road equipment in the construction phase were based on an assumed 2011 equipment fleet mix for the AVAQMD. The construction contractor would be required to replace older diesel equipment with newer equipment over time, as necessary for compliance with the specifications of USEPA's Tiers 1 through 4 rules for diesel internal combustion engines.

5.6.3.2.2 Development of Operational Emissions. The direct operational emissions of the solar PV facility would consist of periodic testing of the standby emergency diesel-fired firewater pump, as well as maintenance vehicles, and water trucks for dust control and for

solar panel washing. The vehicle emissions were calculated based on estimated mileage per day and CARB emission factors for various truck categories. Indirect off-site emissions were based on the number of employees commuting to the site each day (16 workers) and assumed commute trip lengths consisting of an assumed round trip distance of 75 miles.

The principal assumptions underlying the development of criteria pollutant emissions estimates for Project operations include the following (refer to Appendix D.4 of this EIR for more information):

- Panel washing would occur twice per year over a 3-4 week period (approximately 21 working days) for each event. Four diesel-fueled water wash trucks would be used for the washing operation with one of the trucks used for temporary access road watering where needed for dust control.
- Periodic testing of the standby emergency fire water pump (diesel engine); assumed once per week for one hour (actual test time is likely 15 minutes).
- Maintenance of solar PV units and inverter stations would utilize on-road pickup trucks.
- Fugitive dust generation on unpaved roads would be based on distance travelled and watering of roads; there are approximately 130 miles of proposed unpaved pathways on the site between rows of solar panels that would be periodically used for maintenance including panel-washing events. Assumed general maintenance activities would involve 2 pickup trucks, each driving 24 miles per day on the site over the life of the project.
- The permanent on-site access roads (all 30-foot-wide and selected 20-foot-wide roads) would have a compacted soil base, which would help limit dust generation. Watering on the other access roads and work areas during operation is estimated to require up to several acre feet per year. Approved dust palliatives would be applied where needed. The palliatives to be used on operational-phase roads (refer to Figure 4.4-1A) and/or other exposed work areas will be identified after construction based on the soil characteristics.
- Vegetation maintenance would be performed primarily using a combination of heavy duty (e.g., hogger) and medium duty mowers as well as weed whackers for selective cutting and trimming. In addition, approved herbicides would be used to control vegetation along fire breaks and around equipment, and to control noxious weeds in applicable locations. It is expected that vegetation maintenance using mowers would occur for approximately 60 to 90 days out of the year while weed whackers or other hand held tools would be used on an as needed basis to control vegetation in selected locations in accordance with Los Angeles County Fire Department requirements, as applicable. This activity would not coincide with the aforementioned panel washing.

Operation of the facility would begin before the end of the 38-month construction period. Hence, it is likely that initial operation described above (i.e., electrical generation and

maintenance of completed portions of the overall facility) would be concurrent with ongoing solar field assembly by late 2010 or early 2011 until the facility is completed.

5.6.3.3 Impacts of AV Solar Ranch One Facility and Off-site Transmission Line

The proposed facility would generate criteria emissions in both the construction and operational phases that are subject to the comparison with the numerical significance thresholds presented in Table 5.6-12.

Air pollutant emissions for the Project's construction phase were evaluated for both a base case 38-month duration schedule using pile foundations and an optional case with concrete ballast foundations, also occurring over 38 months. In each case, Project-related construction emissions include workforce commuting (off-site mobile sources), on-site mobile off-road equipment, on-site fugitive dust from construction and operations, and on-site concrete batch plant emissions. The worst-case construction emission scenario using pile-driven foundations under the fixed-tilt panel installation option would not require use of the on-site concrete batch plant. However, concrete batch plant emissions are addressed since the associated emissions would require a PTO from the AVAQMD under the tracker unit option.

Emissions from the operational phase of the facility are assessed for on-site mobile sources on-site used for maintenance, panel washing, and dust control and off-site mobile sources for employee commuting. The operational-phase emission estimates also include an emergency fire water pump (stationary source). These impacts are quantified in the following subsections.

5.6.3.3.1 Construction Impacts. Construction of the proposed Project would involve demolition of the existing ranch house facilities, on-site access road construction, grading, earthmoving, sheet pile installation, building construction, concrete manufacturing, pile driving, assembly, and erection of equipment and transmission facilities. These activities would be staggered, such that different activities are occurring on different areas of the Project site at any given time (refer to Figure 4.4-13 for the planned construction schedule by activity).

Based on Los Angeles County's methodology (LACDPW 2010) for estimating waste mass generation, demolition of the ranch house and other facilities would include approximately 455 tons of debris to be removed. The estimate is based on the square footage of the structures and the type of construction. Notification for any potential asbestos abatement during demolition to the AVAQMD would be required and approvals would be granted by the AVAQMD (as discussed in EIR Section 5.15) after their review.

It is assumed that the demolition debris would be transported to a local recycling center or a landfill near Lancaster that accepts construction and debris waste in covered haul trucks. The

emissions for this on-site and off-site activity are assumed to occur in the first month of construction and expected to be less than 1 percent of the total construction emissions. Appendices D.2 and D.3 provide the delineation of Month 1 calculated emissions associated with demolition activities.

Grading activities were assumed to involve an estimated maximum 180,000 cubic yards of balanced cut and fill. The volume is based on preliminary grading plans (refer to Figure 4.4-12 and Table 4.4-1). The air quality analysis also considers non-grading related excavations, which are estimated to total up to approximately 70,000 cubic yards. Grading and non-grading related excavated material estimates for infiltration basins, building pads, transmission line(s) footings, and underground trenches for electrical lines, pipelines, etc., were assumed to total approximately 250,000 cubic yards. Cut material would not be exported but would be put in temporary rows for distribution or spread simultaneously. Brush removed on the Project site would be mulched and redistributed on-site. Refer to the Project Description (Section 4.0) for information on equipment staging and a description of each facility. It is expected that the construction activities would result in periodic peak and lull periods of emissions based on the staggering of activities and associated ground disturbance and equipment use over time.

Emissions have been calculated for the two aforementioned construction scenarios (pile and ballast) for the entire Project (site and transmission line). The total emissions estimate was based on the cumulative total of 38 months of off-site and on-site activity. The total emissions for the pile and ballast cases are provided in Tables 5.6-13 and 5.6-14, respectively. The total emissions are less than the corresponding AVAQMD prorated annual emissions thresholds for 38 months, which are also presented in Tables 5.6-13 and 5.6-14.

The emissions for the pile case are larger than the ballast case due primarily to the additional fuel combustion for equipment utilized during the construction of the solar fields, including pile installation activities.

The construction emissions presented in this section are considered to be a conservative worst-case estimate, given the start-and-stop nature of construction equipment operations (i.e., not operating constantly as assumed). The Project site is in a predictably windy area, which could lead to high fugitive dust emissions. Compliance with the dust control plan requirements for high wind events (>25 mph) in accordance with AVAQMD Rule 403 would help limit and control fugitive dust emissions during high wind periods at the Project site.

Examination of the construction emissions tables show that the majority of ozone precursor pollutants (NO_X and ROGs) would be emitted in the exhaust of on-site non-road equipment. The transport of workers and materials to the site makes up less than 33 percent of the total construction emissions for these ozone precursors for the ballast foundation case. The

contribution is even less for the pile foundation case (16 percent). In addition, the construction-phase fugitive dust emissions make up the majority of the total PM_{10} and $PM_{2.5}$ emissions. When compared with the AVAQMD's emissions inventory, the peak project PM_{10} and NO_X emissions would each represent only small fractions (<2 percent) of the total district-wide emissions for 2008.

The Project would require an Authority to Construct (ATC) and Permit to Operate (PTO) from the AVAQMD for the temporary concrete batch plant, if the concrete ballast/tracker technology were to be implemented. Accordingly, all raw material loading processes for the batch plant would be subject to district inspection and permit conditions (in addition to a Rule 403 Fugitive Dust Control Plan). The mass emission rate of $PM_{10}/PM_{2.5}$ for the ballast case would be less than that emitted from the pile driving equipment.

***Off-site Transmission Line*.** The approximately 3.5-mile-long, 230-kV off-site transmission line would be a relatively small element of the entire Project relative to air quality, since there would be minimal emissions from construction and/or operations. The assessment of potential transmission line-related impacts on air quality relative to applicable AVAQMD and KCAPCD thresholds follows.

Construction of the transmission line would occur over an estimated four-month period within the overall 38-month construction schedule. Ground disturbance, including limited vegetation clearing where necessary, would be less than 0.1 acre at each transmission pole location (46 total; 36 of which are off-site). Pole installation activities would involve an estimated 2,000 cubic yards of pole foundation excavations. Construction and erection activities at each individual pole/work area location would take about 2 days or less. The proposed transmission line would not require clearing of vegetation along the ROW (except around pole locations and along short access pathways) and would not require blading of new access roads in either Los Angeles or Kern counties. The proposed route is parallel to 170th Street West and the adjacent previously disturbed roadway shoulder or flat agricultural lands in most cases. Project-related fugitive dust generation would be limited due to these factors.

Transmission line construction emissions inside Kern County were estimated for comparison to KCAPCD thresholds on a daily and annual basis. For this construction activity, the activity scheduling does not change between the pile and ballast schedules. The duration of the transmission line installation within Kern County is expected to be approximately 2 months. As shown in Tables 5.6-15 (daily) and 5.6-16 (annual), transmission line construction impacts in Kern County would be below the applicable significance thresholds. The tables delineate motor vehicles emissions associated with transmission line construction.

Total construction equipment activity for the transmission line is a small percentage (less than 5 percent) of the total Project construction activity in the first year of construction. The

combustion emissions from transmission line construction activities would be associated with intermittently operated equipment, not sustained earthmoving or grading. No preconstruction permit would be required for KCAPCD for the construction of the transmission line in Kern County given that there is no stationary source permit required. However, a KCAPCD-approved fugitive control plan would be necessary for the transmission line construction activity.

5.6.3.3.2 Operational Impacts. The criteria pollutant emissions for the operational sources described previously were quantified on a daily and annual basis. Tables 5.6-17 and 5.6-18 present the predicted maximum daily emissions (lb/day) and annual emissions (ton/year) for the operational phase of the Project. These emissions are below the significance thresholds of the AVAQMD by a large margin.

Peak daily emissions from operational-phase activities would include normal maintenance truck activity, periodic fire water pump engine testing, and water truck operation coinciding with the infrequent panel washing activity. Annual emissions assume all activities (panel washing, tractor for vegetation cutting and fire break clearing, water truck, and testing of a diesel fire water pump engine) occurring during the year within the AVAQMD.

The firewater pump, as applicable, would require an ATC and a PTO from AVAQMD. This permit would place conditions governing non-emergency hours of use, engine certification, and recordkeeping. The engine would be subject to BACT requirements for NO_X and have state-wide air toxic control measures for diesel particulate emissions.

Off-site Transmission Line. Operation and maintenance activities for the transmission line affecting air quality would consist of annual visual inspections via a pickup truck on paved roads and periodic washing of insulators at pole locations on an as-needed basis. These activities would be infrequent and transient in nature. Conductor (transmission line) clearances for underlying vegetation would be maintained in accordance with California Public Utilities Commission (CPUC) General Order (GO) 95 (Rules for Overhead Electric Line Construction). Maintenance of minimum vegetation clearance distances (10 feet clearance) would require limited, if any, infrequent trimming to meet CPUC GO 95 requirements.

Along the Los Angeles County portion of the route, occasional routine line or pole maintenance could be performed within the existing road ROW using bucket-lift trucks and would not require disturbance or removal of existing vegetation. In Kern County, the 20-foot-wide paths accessing the poles would be maintained, if necessary, to control vegetative growth so as to not preclude vehicular access to pole locations. The majority of the land adjacent to the public road ROW for 170th Street West in Kern County is flat agricultural land that would require minimal, if any, vegetation maintenance for pole access.

No appreciable impacts to air quality from these infrequent operational activities are anticipated and impacts would be less than significant.

5.6.3.4 Impact Analysis

The assessment of Project air quality impacts during both the construction and operation phases using the specified significance criteria follows:

5.6.3.4.1 Criteria 1: Would the proposed project exceed the State's criteria for regional significance (generally (a) 500 dwelling units for residential uses or (b) 40 gross acres, 650,000 square feet of floor area or 1,000 employees for non-residential uses)?

Construction and Operation. This project is classified as one of regional significance based on site acreage. However, Tables 5.6-17 and 5.6-18 show that the Project's operational emissions for the solar PV facility would be below the applicable significance thresholds and the facility would employ far fewer than 1,000 employees, so impacts to air quality would not be regionally significant.

This criterion is based on the assumption that a project may create emissions related to additional traffic congestion. The proposed project would exceed 40 acres of gross space but not 650,000 square feet of floor area, or 1,000 employees for non-residential uses. The traffic impact assessment presented in Section 5.11 and Appendix G of this EIR conclude that the Project would not result in any significant traffic impacts on traffic study area roadway segments or intersections during the construction phase. The Project would not cause long-term traffic congestion because of the low number of operational-phase workers (16). Impacts would be less than significant.

5.6.3.4.2 Criteria 2: Is the proposal considered a sensitive use (schools, hospitals, parks) and located near a freeway or heavy industrial use?

Construction and Operation. This criterion does not apply to the proposed Project because the Project is not considered a sensitive use, thus this criterion is not addressed further herein.

5.6.3.4.3 Criteria 3: Would the project increase local emissions to a significant extent due to increased traffic congestion or use of a parking structure or exceed AQMD thresholds of potential significance?

Construction. The construction phase of the Project would not result in a significant increase in traffic as discussed in Section 5.11, Traffic and Access. Project construction-phase emissions of all criteria pollutants would be below the applicable AVAQMD thresholds of significance for both the ballast and pile foundation scenarios (i.e., prorated annual emissions

for 3 years and daily emissions for 2 months [44 working days]). Appendix D discusses methodologies used and assumptions made in calculating local emissions from traffic congestion as well as sources of emissions.

Traffic impacts within KCAPCD's jurisdictional area would be minimal based on the less-than-significant traffic impact presented in Section 5.11 (Traffic and Access). Workforce commuting for the transmission line within the KCAPCD boundaries would be primarily over roads within Los Angeles County.

Potential Impact 5.6-1: Exceed AVAQMD Significance Thresholds during construction.

Emissions thresholds that are used by the AVAQMD and KCAPCD as indicators of the significance of a proposed project's impacts to air quality are listed in Table 5.6-12. Tables 5.6-13 and 5.6-14 present calculated maximum total Project emissions within the AVAQMD for the 8-10 MW-per-month construction scenario for the pile and ballast foundation cases. These tables also include total emissions from construction of the off-site transmission line, 60 percent of which would occur within the AVAQMD jurisdictional area. Corresponding AVAQMD emission thresholds for the total construction period are included in these tables for reference.

The total construction emissions for all criteria pollutants during construction are calculated to be less than the applicable AVAQMD thresholds (i.e., prorated annual emissions for 3 years and daily emissions for 2 months [44 working days]). Though less than the applicable threshold of 78 tons for NO_X emissions, the pile foundation construction scenario is closer to the applicable threshold than the concrete ballast foundation construction scenario. The estimated total NO_X emissions for the pile foundation scenario is 74 tons, while the concrete ballast foundation scenario is 55 tons.

The Project design measures for reducing PM_{10} (fugitive dust), including watering at least three times per day (when soil moisture conditions result in dust generation), operational controls, and application of soil palliatives (binders, and chemical dust suppressants), are estimated to reduce emissions by 84 percent. The PM_{10} emissions described above reflect this level of mitigation. The estimated construction equipment engine PM_{10} emissions are based on an AVAQMD fleet average of non-road equipment for 2011.

With implementation of Mitigation Measures 5.6-1 through 5.6-10, potentially significant exceedances of AVAQMD thresholds would not occur.

Construction of the off-site transmission line would not result in substantial emissions and air quality-related impacts would be less than significant. However, the proposed off-site transmission line is an integral part of the overall proposed Project. As such, the emissions associated with construction of the transmission line would combine with the construction

emissions of the proposed AV Solar Ranch One facility. As shown on Figure 4.4-13, overlapping activities on the AV Solar Ranch One site that are planned to be under construction at the same times as the off-site transmission line include: on-site substation, medium-voltage infrastructure, Operations and Maintenance facility, temporary construction facilities, utilities/civil works, and Solar Field 1. As shown in Tables 5.6-15 and 5.6-16, total Project emissions of PM_{10} from construction of the off-site transmission line would not exceed the KCAPCD thresholds for daily or annual emissions of PM_{10} (refer to Appendix D for more information).

Operation. Operation of the proposed Project would not cause a significant increase in traffic (i.e., 16 workers). As shown in Table 5.6-17, daily maximum emissions of PM_{10} and NO_X during the operational phase are 18.1 and 11.1 pounds per day, respectively. These maximum daily emission estimates include the semiannual panel-washing activity (twice a year for each panel) in addition to routine operation and maintenance activities, vegetation management, workforce (16) commuting, and emergency fire water pump testing. Activities such as operation of the O&M building and water pumping utilize electrical energy and are not associated with direct air emissions, but are accounted for as parasitic loads on net energy output delivered. This estimate is very conservative, since it assumes all these activities occur on the same day. Refer to Tables 5.6-17 and 5.6-18 and Appendix D for more information. Emissions would not be greater than AVAQMD thresholds of significance and, thus, impacts during the operational phase would be less than significant.

Operation and maintenance activities for the transmission line affecting air quality would typically consist of annual visual inspections via a pickup truck primarily on paved roads and periodic washing of insulators at pole locations on an as-needed basis. These activities would be infrequent and transient in nature. Conductor (transmission line) clearances for underlying vegetation would be maintained in accordance with CPUC GO 95 (Rules for Overhead Electric Line Construction). Maintenance of minimum vegetation clearance distances (10 feet clearance) would require limited, if any, infrequent trimming to meet CPUC GO 95 requirements.

Along the Los Angeles County portion of the route, occasional routine line or pole maintenance could be performed within the existing road ROW. In Kern County, the 20-foot-wide paths accessing the poles would be maintained, if necessary, to control vegetative growth. The majority of the land adjacent to the public road ROW for 170th Street West in Kern County is flat agricultural land that would require minimal, if any, maintenance.

No appreciable impacts to air quality from these infrequent operational activities are anticipated and, when considered together with operational phase emissions of the solar generating facility, would not result in an exceedance of applicable AVAQMD or KCAPCD thresholds of significance. Impacts would be less than significant.

5.6.3.4.4 Criteria 4: Would the project generate or is the site in close proximity to sources that create obnoxious odors, dust, and/or hazardous emissions?

Construction. With the implementation of the AVAQMD required dust control plan, the construction phase of the Project could still generate short-term visible dust emissions. The nature and extent of the dust release would depend on the specific operation involved (e.g., road travel, grader scraping, etc.) and wind conditions. The dust emissions would have a low release height due to the nature of soil disturbance caused by tires and tracked equipment moving at low speeds. Potential vehicle/equipment exhaust odors emanating off-site would not be expected, assuming non-road equipment was properly maintained. Well-tuned engines without oil/fuel leaks would minimize odors in exhaust.

While diesel particulates are a state regulated TAC, the hazardous characteristics of the pollutant for short-term exposure cannot be adequately quantified by regulatory agencies for several reasons. The primary reasons include: 1) the health risk quantification of diesel particulate matter depends on prolonged exposure (70 years); and 2) the uncertainties of measurement of specific chemicals (with acute health properties) within entire diesel exhaust (non-particulates). The large buffer of land within the Project site and the low number of residents near the solar facility property (i.e., none closer than 0.4 mile) would minimize the public potential acute health risk from Project-related diesel exhaust.

Valley Fever. Persons living near the Project site are currently exposed to high levels of dust due to agricultural and off-road activities and wind storms. The dust in the region of the Project site is believed to contain the *C. immitis* fungi. The local populace is already currently exposed to dust likely containing the fungi, and exposure over time increases immunity to Valley Fever. A large portion of residents in areas with Valley Fever have built up immunity to the disease.

Construction workers not native or living in the area may be more sensitive to contracting Valley Fever. Construction workers can reduce the risk of a Valley Fever infection by wearing dust masks during construction. Ordinary paper dust masks may not be completely effective to filter tiny *C. immitis* spores. Where necessary, commercial miner's masks that are NIOSH-approved can be effective (Shepard 2009).

Potential Impact 5.6-2: Valley Fever Risk associated with Project construction phase-generated dust.

Construction. Valley Fever impacts associated with Project generated dust during the construction phase would be potentially significant. With implementation of a well executed dust control plan, and worker protection measures, the Valley Fever risk/health risk impacts would be less than significant. Refer to Section 5.6.6, Mitigation Measures, for more information (see Mitigation Measures 5.6-2, 5.6-3, and 5.6-11).

The mass of air emissions emitted during construction of the off-site transmission line would be only a small fraction (less than 5 percent) of the peak daily and annual emissions occurring in Los Angeles County shown in Tables 5.6-13 to 5.6-14. Tables 5.6-15 and 5.6-16 show the emissions from transmission line construction in Kern County, which are well below the applicable significance thresholds. The construction of the transmission line would be short-term and transitory, covering 4.25 miles in 4 months. There are several residences near the proposed transmission line route along 170th Street West, which would be near construction activities for one to two days each. The fugitive dust emissions and emissions from the diesel-fueled equipment during transmission line installation would be intermittent, and would not pose a significant nuisance or health risk to nearby residences due the short duration of the activity and the dust control measures to be implemented. Impacts would be short-term, transient, and less than significant for construction activities.

Operation. The proposed Project would not generate obnoxious odors or hazardous emissions. The diesel particulate emissions during operations would be low (compared to significance thresholds) as presented in Tables 5.6-17 and 5.6-18. Nearby residents (nearest residence is over 2,000 feet away from the site) would not be affected by the diesel particulates due to the low emissions and near field dispersion characteristics. The particulate emissions from the few mobile sources would disperse to low concentration prior to leaving the site boundary. The low speed of the on-site water trucks coupled with daily watering in activity areas (i.e., areas involving maintenance activities) would keep emissions, including potentially noxious odors and dust, to less than significant levels. Annual water use for dust control is projected to be several acre feet per year.

Project operations would not be expected to produce hazardous dust conditions. No earthmoving activities are proposed during the operational phase, and the primary internal roads would have a compacted soil base. The solar array areas requiring periodic vehicular access for vegetation control and maintenance activities would involve travel on stabilized soil surfaces (i.e., either covered with compacted soil, low growing vegetation or soil stabilizers/tackifiers). Impacts would be less than significant.

Operation and maintenance activities for the transmission line affecting air quality would be minimal as described previously. No appreciable impacts to air quality from this operational activity are anticipated. Impacts would be less than significant.

5.6.3.4.5 Criteria 5: Would the project conflict with or obstruct implementation of the applicable air quality plan?

Construction. The proposed Project would not conflict with or obstruct implementation of any of the proposed measures of the ozone attainment plan for AVAQMD. The construction-phase emissions would be short-term, and would not conflict with the long-term progress

toward attainment because construction phase emissions comprise a small fraction of total AQMD inventory and are short-term and transitory in nature.

The existing AVAQMD ozone attainment plan does not address NO_X emissions from non-road construction equipment. Non-road engines contribute to the AVAQMD inventory and emission reductions are planned by the California State Implementation Plan (SIP) measures governing off-road equipment. The Project's use of a compliant fleet of non-road engines by the construction contractor (Mitigation Measure 5.6-4) would be consistent with the state and local plan requirements.

The Project would need to comply with the AVAQMD Rules and Regulations pertaining to the stationary concrete batch plant and fugitive dust rules. The proposed PM measures (#24 to #44) in AVAQMD's List and Implementation Schedule for District Measures to Reduce PM Pursuant to Health & Safety Code §39614(d) would be incorporated into the fugitive dust control plan. Major elements of a fugitive dust control plan include a watering schedule, equipment track out, and activity scheduling.

Air emissions from construction of the transmission line would not conflict with or obstruct implementation of applicable air quality plans (e.g., AVAQMD ozone attainment plan). The mass emission totals from this activity would be a small percentage of the peak daily and annual emissions for construction of the overall Project (see Tables 5.6-13 and 5.6-14). Air emissions resulting from construction of the transmission line would be minimal, short-term, and transient. Impacts would be less than significant.

Operation. Operation of the proposed Project, including the off-site transmission line, would not conflict with or obstruct implementation of any of the measures of the AVAQMD or the KCAPCD, including the AVAQMD ozone attainment plan. Operation phase emissions are presented in Tables 5.6-17 and 5.6-18. Impacts would be less than significant.

5.6.3.4.6 Criteria 6: Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Construction.

Potential Impact 5.6-3: Exceed Air Quality Standards during construction.

Given the low release height of Project construction emissions due to the nature of soil disturbance caused by tires and tracked equipment, the nature of particle dispersions from moving vehicles, and the expanse of the Project site, the Project would not be expected to cause an exceedance of an ambient air quality standard beyond the boundaries of the site on a continuous basis. However, depending of the location of the non-road equipment and the extent of calm wind periods, there remains the potential for incidental exceedance of air

quality standards off-site. The exceedance would be short-term and likely not continuous, given the daily construction schedule and the advancing nature of the solar array field development (i.e., any given off-site location would not be exposed to chronic exceedance). Also, migration and the transitory nature of construction activities related to solar power development would produce only short term exceedances. The Project would be required to prepare a dust control plan to provide controls against any wind blown dust during high wind conditions and recognizable visible plumes would be quickly corrected (within a day).

Project-related construction emissions would not be expected to exceed CAAQS or NAAQS beyond the Project boundary for more than several hours at a time because a dust control plan would be implemented within this time frame. Due to the short-term and transient nature of this potential impact, Project emissions from non-point sources would be considered adverse, but less than significant.

The mass emission totals associated with construction of the transmission line would be a small percentage of the overall construction emissions, as shown in Tables 5.6-13 and 5.6-14 for the overall Project. Construction emissions associated with the transmission line would be minimal, short-term, and transient. Construction-phase emissions would not violate any air quality standard or contribute substantially to an existing or projected air quality violation. Impacts would be less than significant.

Operation. The low level of emissions during the operations phase and the nature of dispersions from moving vehicles would not cause an exceedance of an ambient air quality standard. The Project would implement dust control measures to limit wind-blown dust during normal and high wind conditions. Impacts would be less than significant.

5.6.3.4.7 Criteria 7: Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under applicable federal or state ambient air quality standard (including release emissions which exceed quantitative thresholds for ozone precursors)?

Construction. As discussed under Impact 5.6-1 (Exceed AVAQMD Significance Thresholds during construction), construction of the proposed Project would not result in PM_{10} and NO_X emissions in excess of AVAQMD significance thresholds. The Project region is non-attainment for PM_{10} (state) and O_3 (state and federal). The Project would not result in Project-specific or cumulatively significant impacts relative to PM_{10} emissions. These impacts would be temporary, less than significant and limited to the Project construction phase. Temporary emissions from construction of the proposed Project would not conflict with the ozone attainment plan of the AVAQMD because the attainment plan assumes: 1)

construction projects will occur, and 2) non-road engines will improve over time due to state regulation. The attainment plan focuses on long-term sources of air emissions.

The temporary emissions from construction of the transmission line would not result in a cumulatively considerable net increase such as PM_{10} or NO_X. However, construction of the transmission line would contribute to the overall emissions of the proposed Project (which are below applicable AVAQMD thresholds) as well as to emissions from other potential cumulative projects in the Project region. The emissions contribution from the transmission line component would not be considerable for PM_{10} or NO_X.

Operation. Operation of the proposed Project would result in minimal emissions during the operational phase. All operational phase emissions would be less than the AVAQMD annual thresholds. Operation of the proposed Project, including the off-site transmission line, would not result in adverse cumulative impacts relative to emissions of non-attainment criteria pollutants.

5.6.3.4.8 Indirect Impacts. The operation of the Project would result in decreased criteria pollutant and greenhouse gas emissions compared to the status quo of grid power via traditional fossil fueled power generation facilities. The proposed Project would produce clean renewable energy that would be available in lieu of traditional fossil fuel generation. Given the California PUC's mandates (33 percent renewable by 2020), utilities are taking steps to acquire renewable power sources in lieu of fossil fuel generation. The displacement of fossil-fuel power would be based on the Project's estimated 628,000 gross megawatt hours per year (MWHr/yr). With an assumption of 5 percent loss due to transmission losses and panel degradation over time, the resultant average displacement is estimated at 596,600 MWHr/yr. Table 5.6-19 presents estimates of the displaced criteria pollutant emissions that could be considered attributable to the proposed Project over the Project life (30 years). These estimates are based on the California grid mixture (Wolff 2005). Appendix D.6 provides calculations and documentation of the factors used.

The generation of solar energy and associated potential to displace fossil-fuel power generation emissions would be expected to assist the AVAQMD and other air quality jurisdictions in California in meeting their air quality objectives and to improve air quality. The potential for displacement or avoidance of fossil fuel emissions for an equivalent amount of power generation would constitute an indirect, beneficial impact of the Project, as applicable.

5.6.4 Cumulative Impacts

The cumulative projects list for consideration in this Draft EIR is presented in Section 4.6 (refer to Table 4.6-1 and Figure 4.6-1). The construction schedule for the proposed Project (i.e., October 2010 to the end of 2013) has the potential to overlap with several other

potential projects in the Project vicinity, including the Fairmont Butte Motorsports Park project and the SCE Tehachapi Renewable Transmission Project (TRTP). Cumulative air emissions for the proposed Project when considered with other potential projects in the Project region are not expected result in significant impacts for emissions of PM_{10} and NO_X during the 38-month construction phase. The total estimated maximum Project-specific emissions over the 38-month construction phase of PM_{10} (27.94 tons) and NO_X (74.3 tons) equate to approximately 0.04 percent and 0.23 percent, respectively, of the total estimated emissions for 2008 within the AVAQMD (AVAQMD 2009). Construction emissions from the proposed Project would not result in a cumulatively considerable increase in emissions within the AVAQMD.

During operation, the Project would result in less than significant PM_{10}, $NO_{X,}$ as well as all other criteria pollutant and greenhouse gas emissions. The proposed Project would emit minimal combustion emissions relative to the anticipated generated electrical output when compared to traditional electrical generation sources. Potential cumulative impacts of the proposed Project when considered together with other renewable energy projects proposed in the Project region (e.g., Pacific Wind Energy Project) would be considered to be beneficial and result in a combined substantial reduction in combustion-related emissions compared to traditional fossil fuel generation. The net reduction of emissions from other renewable based power projects cannot be accurately estimated due to the large number of projects in the early development and permitting stages. However, the total rated capacity of the other potential renewable energy projects and associated potential air quality benefits are much larger than the AV Solar Ranch One Project alone.

The estimated criteria pollutant emissions that could be displaced on an annual basis by the proposed Project (alone) are listed in Table 5.6-19. Additionally, the proposed Project (alone) would be expected to reduce carbon dioxide (CO_2) equivalent (CO_2e) emissions by over 196,000 metric tons per year (refer to Table 5.17-3) compared to traditional generation source emissions for an equivalent electrical output. Overall, the Project's incremental contribution to reductions in air quality impacts within the MDAB would be expected to result in beneficial cumulative effects over the life of the Project (expected to be 30 years). The expected long-term air quality benefits of the Project would be expected to outweigh the short-term, less than significant PM_{10} and NO_X impacts of the Project from a cumulative impact perspective.

In summary, cumulative impacts for air quality for the proposed Project, when considered with other potential projects, are expected to be less than significant for emissions of PM_{10} and NO_X during the construction phase. Potential cumulative air quality impacts during the operational phase would be expected to be beneficial.

5.6.5 Mitigation Measures

As discussed in Section 5.6.3, there are several assumptions used in the emission calculations which include hours of operation, duration of activity, and type of equipment. These are part of the proposed Project and are not mitigation measures per se. These assumptions are detailed in Appendix D. An important implicit assumption for the construction phase would include that all electrical power used for concrete batch plant operations, ground water pumping, and O&M building operations would be provided by electricity from the local utility grid.

The Applicant will need to submit a fugitive dust control plan addressing the Project-specific application of AVAQMD Rule 403 requirements to address potential fugitive dust impacts (e.g., Potential Impact 5.6-1). The plan shall address the use of frequent watering and chemical dust suppressants, trackout and carryout minimization, storage pile management, vehicle speed limits on unpaved surfaces, disturbed area stabilization, unpaved road maintenance, and controls for wind erosion.

The following measures shall be implemented to reduce potentially significant air quality impacts to less-than-significant levels and to lessen the severity of impacts discussed in Section 5.6.3.

Mitigation Measure (MM) 5.6-1: Ensure AVAQMD Construction Emission Thresholds would be Met. Prior to issuance of the grading permit, the Applicant shall select an engineering, procurement, and construction (EPC) contractor to build the Project. The Applicant/EPC contractor shall be required to demonstrate that the final construction plans will not result in exceedances of applicable AVAQMD air emission significance thresholds during construction of the Project to the satisfaction of AVAQMD and LACDRP.

Prior to issuance of a grading permit, the Applicant shall prepare a report describing the Applicant's final engineering design-based plan for constructing the Project, including: 1) scheduling of construction activities; 2) equipment usage and details; 3) construction workforce loading; 4) truck deliveries schedule; and 5) ground disturbing/dust generating activities, etc. The report shall include emission calculations to demonstrate that the final construction plan will not result in exceedances of all applicable AVAQMD criteria pollutant emissions thresholds to the satisfaction of AVAQMD. The emission calculations shall include consideration of the emission reductions provided by implementation of Mitigation Measures 5.6-2 through 5.6-10, below.

MM 5.6-2: Develop and Implement Fugitive Dust Emission Control Plan. The Applicant shall develop a Fugitive Dust Emission Control Plan (FDECP) for construction work. The FDECP shall be submitted to AVAQMD for review and approval prior to issuance of a grading permit.

Measures to be incorporated into the FDECP shall include, but are not limited to the following:

- The proposed PM measures (#24 to #44) in AVAQMD's List and Implementation Schedule for District Measures to Reduce PM Pursuant to Health & Safety Code §39614(d) shall be incorporated into the fugitive dust control plan, as applicable.
- Non-toxic soil binders shall be applied per manufacturer recommendations to active unpaved roadways, unpaved staging areas, and unpaved parking area(s) throughout construction to reduce fugitive dust emissions.
- Travel on unpaved roads shall be reduced to the extent possible, by limiting the travel of heavy equipment in and out of the unpaved areas.
- Water the disturbed areas of the active construction sites at least three times per day, (when soil moisture conditions result in dust generation) and more often if visible fugitive dust leaving the site is noted.
- Enclose, cover, water twice daily, and/or apply non-toxic soil binders according to manufacturer's specifications to exposed piles of soils with a five percent or greater silt content.
- Maintain unpaved road vehicle travel to the lowest practical speeds, and no greater than 15 miles per hour (mph), to reduce fugitive dust emissions.
- All vehicle tires shall be inspected, be free of dirt, and washed as necessary prior to entering paved roadways from the Project site.
- Install wheel washers or wash the wheels of trucks and other heavy equipment where vehicles exit the site.
- Cover all trucks hauling soil and other loose material, or require at least 2 feet of freeboard.
- Establish a vegetative ground cover (in compliance with biological resources impact mitigation measures) or otherwise create stabilized surfaces on all unpaved areas through application of dust palliatives at each of the construction sites within 21 days after active construction operations have ceased.
- Prepare contingency for high wind periods (greater than 25 mph) to shutdown or mitigate activity as necessary to control fugitive dust.
- Travel routes to each construction site area shall be developed to minimize unpaved road travel. Travel management shall include staging of deliveries to minimize idling or congestion, use of dust palliatives or soil tackifiers on road surfaces, and minimizing travel distance.

MM 5.6-3: Dust Plume Response Requirement. An air quality construction mitigation manager (AQCMM) or delegate shall monitor all construction activities for visible dust plumes. Observations of visible dust plumes that have the potential to be transported: 1) off the Project site; 2) 200 feet beyond the centerline of the construction of linear facilities; or 3) within 100 feet upwind of any regularly occupied structures not owned by the Project owner indicate that existing mitigation measures are not resulting in effective mitigation. The AQCMM or Delegate shall promptly implement additional dust plume reduction measures in the event that such visible dust plumes are observed. Additional measures to be implemented, as necessary, shall include increased watering, application of dust palliatives, and/or scaled back construction activities up to and including temporary work cessation.

MM 5.6-4: Off-road Diesel-fueled Equipment Standards. All portable construction diesel engines not registered under CARB's Statewide Portable Equipment Registration Program, which have a rating of 50 hp or more, and all off-road construction diesel engines not registered under CARB's In-use Off-road Diesel Vehicle Regulation, which have a rating of 25 hp or more, shall meet, the projected 2011 fleet average of NO_X and PM emissions as that predicted by the OFFROAD2007 model in Appendix D. The EPC shall use the CARB Portable Diesel Engine Airborne Toxic Control Measure (ATCM) Fleet Calculators and the Off-road Diesel Fleet Average Calculators (for large/medium fleets) in accordance with the respective regulation under Title 13 of the California Code of Regulations (CCR) to conduct this comparison. No Tier 0 diesel equipment shall be used at the site after the initial calculation/registration without recalculation using the CARB fleet calculators. The fleet average calculation of the on site equipment shall be conducted annually to ensure compliance. The EPC contractor shall ensure labeling of all portable and off road diesel equipment in accordance with Title 13 of the CCR.

MM 5.6-5: Limit Vehicle Traffic and Equipment Use. Vehicle trips and equipment use shall be limited by efficiently scheduling staff and daily construction activities to minimize the use of unnecessary/duplicate equipment.

MM 5.6-6: Heavy Duty Diesel Water Haul Vehicle Equipment Standards. For the pile foundation case (which results in higher air emissions than the ballast foundation case and requires additional mitigation), the EPC shall use 2006 model or newer engines in order to meet the EMFAC predicted emissions levels in grams of pollutant per mile travelled (g/mile) of on-road heavy duty diesel trucks used for water hauling at the site. The EPC contractor shall ensure labeling of such trucks to indicate model year.

MM 5.6-7: On-road Vehicles Standards. All on-road construction vehicles shall meet all applicable California on-road emission standards and shall be licensed in the State of California. This does not apply to construction worker personal vehicles.

MM 5.6-8: Properly Maintain Mechanical Equipment. The construction contractor shall ensure that all mechanical equipment associated with Project construction is properly tuned and maintained in accordance with the manufacturer's specifications.

MM 5.6-9: Restrict Engine Idling to 5 Minutes. Diesel engine idle time shall be restricted to no more than 5 minutes as required by the CARB engine idling regulation. Exceptions in the regulation include vehicles that need to idle as part of their operation, such as concrete mixer trucks.

MM 5.6-10: Off-road Gasoline-fueled Equipment Standards. Any off-road stationary and portable gasoline powered equipment brought on site for construction activities shall have USEPA Phase 1/Phase 2 compliant engines, where the specific engine requirement shall be based on the new engine standard in affect two years prior to the commencement of Project construction. In the event that USEPA Phase 1/Phase 2 compliant engines are determined not to be available, the Applicant shall provide documentation to the AVAQMD with an explanation.

MM 5.6-11: Off-road Equipment Operator Worker Protection. Appropriate training for respiratory protection shall be provided to construction workers. Dust masks (NIOSH approved) shall be provided with proper training to construction workers to mitigate the protection against dust exposure and possibly Valley Fever during high wind events and/or dust-generating activities**.**

5.6.6 Level of Significance after Mitigation

Impact 5.6-1: Exceed AVAQMD Significance Thresholds during construction.

The proposed Project would not result in exceedances of AVAQMD annual emission thresholds for all criteria pollutants ($PM_{10,}$ $NO_{X,}$ $CO,$ ROG, and SO_X) during the construction phase. Implementation of Mitigation Measures (MM) 5.6-1 through 5.6-10 would reduce the amount of PM_{10} and NO_X emissions ensuring impacts would be less than significant over the construction phase.

Impact 5.6-2: Valley Fever Risk associated with Project construction phase-generated dust.

The proposed Project would generate dust during the construction phase associated with ground disturbing activities and vehicular/equipment movement on unpaved surfaces. These dust-generating activities have the potential to increase the risk of exposure to Valley Fever (*C. immitis* fungi). With implementation of mitigation measures focused on reducing fugitive dust emissions (i.e., MM 5.6-1, 5.6-2, 5.6-3) and MM 5.6-11 (Off-road Equipment Operator Worker Protection), the additional risk associated with dust exposure and possible Valley

Fever exposure would be reduced to an acceptable level and would be considered less than significant.

Impact 5.6-3: Exceed Air Quality Standards during construction.

Construction activities would result in vehicular and equipment tailpipe emissions and concrete batch plant PM emissions, as well as fugitive dust emissions from ground-disturbing activities. Both PM_{10} and NO_X would be emitted at levels that would be less than AVAQMD thresholds. With implementation of Mitigation Measures 5.6-1 through 5.6-10, Project emissions would not be expected to exceed CAAQS or NAAQS beyond the Project site boundary for more than several hours at a time during the construction phase. Residual impacts following implementation of mitigation measures would be expected to be short-term, transient, and less than significant.

Impact 5.6-4: Result in a cumulatively considerable net increase in a criteria pollutant (PM_{10}).

The Project region is non-attainment for PM_{10} (state). Project construction emissions of PM_{10} would not exceed AVAQMD thresholds. With implementation of Mitigation Measures 5.6-1 through 5.6-10 emissions and associated potential impacts would be further reduced. Cumulative Project impacts would less than be significant for PM_{10} during the short-term construction phase, and would be expected to be beneficial during the operational phase due to the potential for displacement of PM_{10} emissions (refer to Section 5.6.4).

5.6.7 References

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TABLE 5.6-1
NATIONAL AND CALIFORNIA AMBIENT AIR QUALITY STANDARDS

		California Standards[1]		Federal Standards[2]		
Pollutant	**Averaging Time**	**Concentration[3]**	**Method[4]**	**Primary[3, 5]**	**Secondary[3, 6]**	**Method[7]**
Ozone (O_3)	1 Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	--	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m^3)*	Ultraviolet Photometry	0.075 ppm (147 µg/m^3)	Same as Primary Standard	Ultraviolet Photometry
Respirable Particulate Matter (PM_{10})	24 Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3	Gravimetric or Beta Attenuation	--	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
Fine Particulate Matter ($PM_{2.5}$)	24 Hour	No Separate State Standard	No Separate State Standard	35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	15.0 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m^3)	None	NDIR
	1 Hour	20 ppm (23 mg/m^3)	NDIR	35 ppm (40 mg/m^3)	None	NDIR
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)	NDIR	--	--	--
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)	Gas Phase Chemi-luminescence	0.053 ppm (100 µg/m^3)	Same as Primary Standard	Gas Phase Chemi-luminescence

TABLE 5.6-1 (CONTINUED)
NATIONAL AND CALIFORNIA AMBIENT AIR QUALITY STANDARDS

		California Standards[1]		Federal Standards[2]		
Pollutant	**Averaging Time**	**Concentration[3]**	**Method[4]**	**Primary[3, 5]**	**Secondary[3, 6]**	**Method[7]**
	1 Hour	0.18 ppm (339 µg/m^3)	Gas Phase Chemi-luminescence	0.100 ppm	Same as Primary Standard	Gas Phase Chemi-luminescence
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	--	Ultraviolet Fluorescence	0.030 ppm (80 µg/m^3)	--	Spectro-photometry (Pararosaniline Method)
	24 Hour	0.04 ppm[3] (105 µg/m^3)	Ultraviolet Fluorescence	0.14 ppm (365 µg/m^3)	--	Spectro-photometry (Pararosaniline Method)
	3 Hour	--	Ultraviolet Fluorescence	--	0.5 ppm (1,300 µg/m^3)	Spectro-photometry (Pararosaniline Method)
	1 Hour	0.25 ppm (655 µg/m^3)	Ultraviolet Fluorescence	--	--	--
Lead[8]	30 Day Average	1.5 µg/m^3	Atomic Absorption	--	--	--
	Calendar Quarter	--	Atomic Absorption	1.5 µg/m^3	Same as Primary Standard	High Volume Sampler and Atomic Absorption
	Rolling 3-month Average[9]	--	Atomic Absorption	0.15 µg/m^3	Same as Primary Standard	High Volume Sampler and Atomic Absorption

TABLE 5.6-1 (CONTINUED)
NATIONAL AND CALIFORNIA AMBIENT AIR QUALITY STANDARDS

		California Standards[1]		Federal Standards[2]		
Pollutant	**Averaging Time**	**Concentration[3]**	**Method[4]**	**Primary[3, 5]**	**Secondary[3, 6]**	**Method[7]**
Visibility Reducing Particles	8 Hour	Extinction coefficient of 0.23 per kilometer — visibility of ten miles or more (0.07 — 30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: beta attenuation and transmittance through filter tape.		No Federal Standards	No Federal Standards	No Federal Standards
Sulfates	24 Hour	25 µg/m^3	Ion Chromatography	No Federal Standards	No Federal Standards	No Federal Standards
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence	No Federal Standards	No Federal Standards	No Federal Standards
Vinyl Chloride[8]	24 Hour	0.010 ppm (26 µg/m^3)	Gas Chromatography	No Federal Standards	No Federal Standards	No Federal Standards

Source: CARB 2009a.

1 California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, suspended particulate matter—PM_{10}, $PM_{2.5}$, and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

2 National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest eight hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than one. For $PM_{2.5}$, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact USEPA for further clarification and current federal policies.

3 Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

4 Any equivalent procedure which can be shown to the satisfaction of the CARB to give equivalent results at or near the level of the air quality standard may be used.

5 National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

6 National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

TABLE 5.6-1 (CONTINUED)
NATIONAL AND CALIFORNIA AMBIENT AIR QUALITY STANDARDS

[7] Reference method as described by the USEPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the USEPA.

[8] The CARB has identified lead and vinyl chloride as "toxic air contaminants" with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

[9] National lead standard, rolling 3-month average: final rule signed October 15, 2008.

TABLE 5.6-2
ATTAINMENT STATUS FOR THE AVAQMD AND KCAPCD[1]

	AVAQMD		KCAPCD	
Pollutant	**Federal**	**State**	**Federal**	**State**
Ozone – 1 hr	N/A	Extreme Non-attainment	N/A	Moderate Non-attainment
Ozone – 8 hr	Non-attainment	Non-attainment	Non-attainment	Not Yet Designated
$PM_{2.5}$	Unclassifiable/ Attainment	Unclassified	Unclassifiable/ Attainment	Unclassified
PM_{10}	Unclassified	Non-attainment	Unclassifiable/ Attainment	Non-attainment
CO	Unclassifiable/ Attainment	Attainment	Unclassifiable/ Attainment	Unclassified
NO_2	Unclassifiable/ Attainment	Attainment	Unclassifiable/ Attainment	Attainment
SO_2	Unclassifiable	Attainment	Unclassifiable	Attainment
Sulfates	N/A	Attainment	N/A	Attainment
Lead	N/A	Attainment	No Designation	Attainment
Hydrogen Sulfide	N/A	Unclassified	N/A	Unclassified

1 Source: CARB 2009c, KCAPCD 2009.

2 N/A – not applicable.

TABLE 5.6-3
NEAREST MOJAVE DESERT AIR BASIN MONITORING LOCATIONS TO THE PROJECT SITE

Monitoring Location	Pollutants Monitored	Proximity to Project Site
Lancaster[1]	O_3, NO_2, CO, PM_{10}, $PM_{2.5}$	18.4 miles ESE of site
Mojave[1]	O_3, NO_2, PM_{10}, $PM_{2.5}$	23.7 miles NE of site
Victorville	O_3, NO_2, SO_2, CO, PM_{10}, $PM_{2.5}$	67.9 miles ESE of the site

[1] Refer to Figure 5.6-1 for locations of Lancaster and Mojave stations. Source: CARB 2009b.

TABLE 5.6-4
OZONE DATA FOR MONITORING STATIONS
CLOSEST TO THE PROJECT SITE[1]

Site	# Days >1-hr CAAQS	Highest 1-hr Observation (ppm)	# Days >8-hr NAAQS	Highest 8-hr Observation (ppm)
Calendar Year 2008				
Lancaster	18	0.116	34	0.102
Mojave	15	0.112	41	0.102
Calendar Year 2007				
Lancaster	16	0.118	42	0.101
Mojave	0	0.092	6	0.084
Calendar Year 2006				
Lancaster	22	0.132	39	0.105
Mojave	10	0.109	27	0.101

[1] Source: CARB 2009a and CARB 2009c.

TABLE 5.6-5
PM_{10} DATA FOR MONITORING STATIONS
CLOSEST TO THE PROJECT SITE[1]

Site	# Days >24-hr NAAQS	# Days >24-hr CAAQS	Annual State Average (µg/m³)	Highest State 24-hr Average (µg/m³)
Calendar Year 2008				
Lancaster	0	--[2]	--[2]	70
Mojave	0	13.1	22.4	144.8
Calendar Year 2007				
Lancaster	6.5	18.3	28.3	181
Mojave	0	--[2]	--[2]	70
Calendar Year 2006				
Lancaster	0	25.7	25.2	58
Mojave	0	13.1	19.5	58

1 Source: CARB 2009a and CARB 2009c.

2 There was insufficient (or no) data available to determine the value.

TABLE 5.6-6
$PM_{2.5}$ DATA FOR MONITORING STATIONS
CLOSEST TO THE PROJECT SITE[1]

Site	# Days >24-hr NAAQS	National Annual Average (µg/m³)	National Highest 24-hr Average (µg/m³)
Calendar Year 2008			
Lancaster	--[2]	--[2]	24.0
Mojave	0	6.8	19.1
Calendar Year 2007			
Lancaster	0	8.0	25.0
Mojave	0	6.2	21.1
Calendar Year 2006			
Lancaster	0	7.4	18.0
Mojave	--[2]	--[2]	21.3

1 Source: CARB 2009a and CARB 2009c.

2 There was insufficient (or no) data available to determine the value.

TABLE 5.6-7A
CO DATA (8-HOUR) FOR MONITORING STATIONS NEAR THE PROJECT SITE[1,2]

Site	Highest 8-hr Observation (ppm)	# Days >NAAQS	# Days >CAAQS
Calendar Year 2008			
Lancaster	1.04	0	0
Victorville	1.04	0	0
Calendar Year 2007			
Lancaster	1.25	0	0
Victorville	1.61	0	0
Calendar Year 2006			
Lancaster	1.60	0	0
Victorville	1.56	0	0

1 Source: CARB 2009a and 2009c.

TABLE 5.6-7B
CO DATA (1-HOUR) FOR MONITORING STATIONS NEAR THE PROJECT SITE[1]

Site	Highest 1-hr Observation[2] (ppm)	# Days >NAAQS	# Days >CAAQS
Calendar Year 2008			
Lancaster	2.2	0	0
Calendar Year 2007			
Lancaster	2.5	0	0
Calendar Year 2006			
Lancaster	3.2	0	0

1 Source USEPA, http://www.epa.gov/air/data/.

TABLE 5.6-8
NO_2 DATA FOR MONITORING STATIONS
NEAR THE PROJECT SITE[1]

Site	Highest 1-hr Observation (ppm)	# Days >1-hr CAAQS	Annual Average (ppm)
Calendar Year 2008			
Lancaster	0.062	0	0.013
Victorville	0.074	0	0.016
Calendar Year 2007			
Lancaster	0.064	0	0.015
Victorville	0.071	0	0.018
Calendar Year 2006			
Lancaster	0.066	0	0.015
Victorville	0.079	0	0.020

[1] Source: CARB 2009a and CARB 2009c.

TABLE 5.6-9A
SO_2 DATA (24-HOUR) FOR MONITORING STATIONS NEAR THE PROJECT SITE[1,2]

Site	Highest 24-hr Observation (ppm)	# Days >24-hr CAAQS	Annual Average (ppm)
Calendar Year 2008			
Victorville	0.002		0.001
Calendar Year 2007			
Victorville	0.005		0.001
Calendar Year 2006			
Victorville	0.005		0.001

1 Source: CARB 2009a and CARB 2009c.

TABLE 5.6-9B
SO_2 DATA (3-HOUR) FOR MONITORING STATIONS NEAR THE PROJECT SITE[1,2]

Site	Highest 3-hr Observation[2] (ppm)	# Days >3-hr NAAQS	Annual Average (ppm)
Calendar Year 2008			
Victorville	0.005	0	0.001
Calendar Year 2007			
Victorville	0.006	0	0.001
Calendar Year 2006			
Victorville	0.012	0	0.002

1 Source: CARB 2009a and CARB 2009c.

2 Source USEPA, http://www.epa.gov/air/data/.

TABLE 5.6-10
MEAN TEMPERATURE PERIOD OF RECORD 01/01/1999–12/31/2008[1]

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Sandburg	39.9°F	40.0°F	43.5°F	46.2°F	56.6°F	66.0°F	73.5°F	72.8°F	66.7°F	56.2°F	47.2°F	40.6°F	54.1°F
Lancaster	43.6°F	46.3°F	52.6°F	57.1°F	68.5°F	77.1°F	83.1°F	81.1°F	73.5°F	62.5°F	50.7°F	42.7°F	61.6°F
Mojave	50.1°F	50.8°F	58.0°F	58.0°F	72.3°F	80.7°F	86.7°F	87.2°F	80.5°F	70.3°F	57.7°F	49.4°F	67.4°F

[1] Source: NCDC 2009.

TABLE 5.6-11
2008 ESTIMATED AVERAGE ANNUAL DAILY EMISSIONS (TONS/DAY) FOR AVAQMD

	Pollutant							
Emission Source	**TOG**	**ROG**	**CO**	**NO_X**	**SO_X**	**PM**	**PM_{10}**	**$PM_{2.5}$**
Total Stationary Sources	15.89	6.28	1.83	2.54	0.16	25.23	11.22	2.57
Total Area-wide Sources	7.72	5.36	6.85	0.56	0.03	57.13	31.15	4.29
Total Mobile Sources	9.83	8.93	64.72	24.67	0.11	1.25	1.24	1.04
Total for Antelope Valley AQMD	33.44	20.57	73.40	27.78	0.29	83.62	43.61	7.90

Source: AVAQMD 2009.
Pollutant acronyms:
TOG = total organic gases.
ROG = reactive organic gases.
CO = carbon monoxide.
NO_X = oxides of nitrogen.
SO_X = oxides of sulfur.
PM = particulate matter.
PM_{10} = particulate matter (≤10 µm).
$PM_{2.5}$ =particulate matter (≤5 µm).

TABLE 5.6-12
LISTING OF AVAQMD AND KCAPCD NUMERICAL EMISSION THRESHOLDS FOR CEQA SIGNIFICANCE[1]

	AVAQMD[2]		KCAPCD	
	Annual Threshold (Tons)	Daily Threshold (Pounds)	Annual Threshold (Tons)	Daily Threshold (Pounds)
Carbon Monoxide (CO)	100	548	NA[3]	NA
Oxides of Nitrogen (NO_X)	25	137	25	137[4]
Volatile Organic Compounds (VOC)	25	137	25	137[4]
Oxides of Sulfur (SO_X)	25	137	27	NA
Particulate Matter (PM_{10})	15	82	15	NA

1 Sources: AVAQMD 2005b; KCAPCD 1999.

2 Applicable to both construction and operational activities. However, for multiple year non-phased construction projects, the annual threshold prorated to the length of the construction duration, serving as a cumulative threshold, is the applicable threshold. Refer to Table 5.6-12B below for prorated AVAQMD emission thresholds for the proposed 38-month construction period for AV Solar Ranch One (DeSalvio, 2010).

3 NA = Not applicable.

4 Motor vehicle sources only.

AVAQMD CEQA EMISSIONS THRESHOLD FOR 38-MONTH CONSTRUCTION PERIOD

		Tons Threshold for 38-month Project				
		PM_{10}	CO	ROC	NO_X	SO_X
Annual Thresholds (Ton/Year)		15.00	100.00	25.00	25.00	25.00
Years	3.00	45.00	300.00	75.00	75.00	75.00
Daily Thresholds (Lb/Day)		82.00	548.00	137.00	137.00	137.00
Months	2.0	1.80	12.06	3.01	3.01	3.01
Days per Month	22.0					
Total Cumulative Thresholds (Tons)		46.80	312.06	78.01	78.01	78.01

TABLE 5.6-13
ESTIMATED MAXIMUM TOTAL CONSTRUCTION EMISSIONS OF CRITERIA POLLUTANTS (TONS) FOR PILE FOUNDATION[1]

	Pollutant					
Activity	**PM_{10}**	**$PM_{2.5}$**	**CO**	**ROG**	**NO_X**	**SO_X**
ON-SITE CONSTRUCTION EMISSIONS (INCLUDING FACILITY SITE AND OFF-SITE TRANSMISSION LINE)[2]						
On-site combustion emissions (consisting of construction equipment and construction trucks)	3.71	3.40	32.64	8.55	61.79	0.07
On-site fugitive dust emissions (from disturbed area)	17.13	3.56	--	--	--	--
On-site fugitive dust emissions (from cut/fill)	6.22	1.29	--	--	--	--
Total on-site emissions	**27.05**	**8.25**	32.64	8.55	61.79	0.07
OFF-SITE ON-ROAD EMISSIONS						
Off-site combustion emissions (consisting of worker vehicles and delivery trucks)	0.89	0.55	36.51	1.35	12.51	0.07
Total off-site emissions	**0.89**	**0.55**	**36.51**	**1.35**	**12.51**	**0.07**
TOTAL MAXIMUM EMISSIONS	**27.94**	**8.81**	**69.15**	**9.90**	**74.30**	**0.14**
AVAQMD THRESHOLDS[3]	**46.80**	**--**	**312.06**	**78.01**	**78.01**	**78.01**

1 Refer to EIR Appendix D for more information.

2 Refer to Table 5.6-16 for calculated construction emissions specifically from off-site transmission line construction. These emissions are accounted for herein as well.

3 AVAQMD thresholds have been prorated for the proposed 38-month construction schedule for AV Solar Ranch One Project.

TABLE 5.6-14
ESTIMATED MAXIMUM TOTAL CONSTRUCTION EMISSIONS OF CRITERIA POLLUTANTS (TONS) FOR BALLAST FOUNDATION[1]

	Pollutant					
Activity	**PM_{10}**	**$PM_{2.5}$**	**CO**	**ROC**	**NO_X**	**SO_X**
ON-SITE CONSTRUCTION EMISSIONS (INCLUDING FACILITY SITE AND OFF-SITE TRANSMISSION LINE)						
On-site combustion emissions (consisting of construction equipment and construction trucks)	2.10	1.92	18.34	5.54	36.66	0.04
On-site fugitive dust emissions (from disturbed area)	17.13	3.56	--	--	--	--
On-site fugitive dust emissions (from cut/fill)	5.24	1.09	--	--	--	--
Concrete batch plant[2]	1.25	0.21	--	--	--	--
Subtotal of on-site fugitive dust emissions	23.62	4.86	--	--	--	--
Total on-site emissions	**25.72**	**6.78**	**18.34**	**5.54**	**36.66**	**0.04**
OFF-SITE ON-ROAD EMISSIONS						
Off-site combustion emissions (consisting of worker vehicles and delivery trucks)	1.00	0.70	28.91	1.41	18.19	0.06
Total off-site emissions	**1.00**	**0.70**	**28.91**	**1.41**	**18.19**	**0.06**
TOTAL MAXIMUM EMISSIONS	**26.72**	**7.48**	**47.25**	**6.95**	**54.85**	**0.10**
AVAQMD THRESHOLDS[3]	**46.80**	**--**	**312.06**	**78.01**	**78.01**	**78.01**

1 Refer to EIR Appendix D for more information.

2 Refer to Table 5.6-16 for calculated construction emissions specifically from off-site transmission line construction. These emissions are accounted for herein as well.

3 AVAQMD annual thresholds have been prorated for the proposed 38-month construction schedule for AV Solar Ranch One Project.

TABLE 5.6-15
ESTIMATED DAILY MAXIMUM CONSTRUCTION EMISSIONS OF CRITERIA POLLUTANTS (LBS/DAY) FOR TRANSMISSION LINE INSTALLATION IN KERN COUNTY[1]

	Pollutant					
Activity	**PM_{10}**	**$PM_{2.5}$**	**CO**	**ROC**	**NO_X**	**SO_X**
ON-SITE CONSTRUCTION EMISSIONS						
On-site combustion emissions (consisting of construction equipment and construction trucks)						
Subtotal of on-site combustion emissions	2.04	1.87	17.74	7.57	54.45	0.07
On-site fugitive dust emissions (from disturbed area)	1.55	0.32	--	--	--	--
On-site fugitive dust emissions (from cut/fill)	2.66	0.56	--	--	--	--
Subtotal of on-site fugitive dust emissions	4.21	0.88	--	--	--	--
Total on-site emissions	**6.25**	**2.75**	**17.74**	**7.57**	**54.45**	**0.07**
OFF-SITE ON-ROAD EMISSIONS						
Off-site combustion emissions (consisting of worker vehicles and delivery trucks)[2]	0.56	0.44	8.99	0.73	12.39	0.03
Total off-site emissions	**0.56**	**0.44**	**8.99**	**0.73**	**12.39**	**0.03**
TOTAL MAXIMUM DAILY EMISSIONS	**6.81**	**3.19**	**26.73**	**8.30**	**66.84**	**0.09**
KCAPCD THRESHOLDS	**--**	**--**	**--**	**137[3]**	**137[3]**	**--**

1 Refer to EIR Appendix D for more information.

2 These mobile source emissions are in AVAQMD but provided in the table for completeness.

3 Motor vehicle sources only.

TABLE 5.6-16
ESTIMATED MAXIMUM ANNUAL CONSTRUCTION EMISSIONS OF CRITERIA POLLUTANTS (TONS/YEAR) FOR TRANSMISSION LINE INSTALLATION (KCAPCD)[1]

	Pollutant					
Activity	**PM_{10}**	**$PM_{2.5}$**	**CO**	**ROC**	**NO_X**	**SO_X**
ON-SITE CONSTRUCTION EMISSIONS						
On-site combustion emissions (consisting of construction equipment and construction trucks)						
Subtotal of on-site combustion emissions	0.12	0.11	1.09	0.45	3.35	0.00
On-site fugitive dust emissions (from disturbed area)	0.06	0.00	--	--	--	--
On-site fugitive dust emissions (from cut/fill)	0.22	0.05	--	--	--	--
Subtotal of on-site fugitive dust emissions	0.28	0.05	--	--	--	--
Total on-site construction emissions	**0.40**	**0.16**	**1.09**	**0.45**	**3.35**	**0.00**
OFF-SITE ON-ROAD EMISSIONS						
Off-site combustion emissions (consisting of worker vehicles and delivery trucks)	0.01	0.01	0.34	0.02	0.30	0.00
Total off-site on-road emissions	**0.01**	**0.01**	**0.34**	**0.02**	**0.30**	**0.00**
TOTAL MAXIMUM ANNUAL EMISSIONS[2]	**0.41**	**0.17**	**1.42**	**0.48**	**3.65**	**0.00**
KCAPCD THRESHOLDS[3]	**15**	**--**	**--**	**25**	**25**	**27**

1 Refer to EIR Appendix D for more information.

2 Annual emissions within the jurisdiction of the KCAPCD are estimated to be approximately 40 percent of the calculated annual emissions listed.

3 Motor vehicle sources only.

TABLE 5.6-17
ESTIMATED DAILY MAXIMUM OPERATIONAL EMISSIONS OF CRITERIA POLLUTANTS (LBS/DAY)[1]

	Pollutant					
Activity	**PM_{10}**	**$PM_{2.5}$**	**CO**	**ROC**	**NO_X**	**SO_X**
ON-SITE EMISSIONS						
On-site combustion emissions						
Emergency firewater pump[2]	0.06	0.06	1.04	0.04	0.74	0.00
Water trucks[3]	0.539	0.486	4.071	2.502	8.952	0.009
Pickup trucks[3]	0.539	0.008	0.208	0.031	0.505	0.001
Subtotal of on-site combustion emissions	1.14	0.55	5.31	2.57	10.20	0.01
On-site fugitive dust emissions						
Water trucks[3]	16.85	2.53	--	--	--	--
Pickup trucks[3]	0.04	0.01	--	--	--	--
Subtotal of on-site fugitive dust emissions	16.90	2.53	--	--	--	--
Total on-site emissions	**18.03**	**3.09**	**5.33**	**2.57**	**10.20**	**0.01**
OFF-SITE EMISSIONS						
Off-site combustion emissions						
Worker vehicles	0.07	0.03	4.26	0.12	0.48	0.01
Total off-site emissions	**0.07**	**0.03**	**4.26**	**0.12**	**0.48**	**0.01**
TOTAL MAXIMUM DAILY EMISSIONS	**18.10**	**3.12**	**9.59**	**2.69**	**10.68**	**0.02**
AVAQMD THRESHOLDS	**82**	**--**	**548**	**137**	**137**	**137**

1 Refer to EIR Appendix D for more information.

2 Stationary source.

3 Mobile source.

TABLE 5.6-18
ESTIMATED MAXIMUM ANNUAL OPERATIONAL EMISSIONS OF CRITERIA POLLUTANTS (TONS/YEAR)[1]

	Pollutant					
Activity	**PM_{10}**	**$PM_{2.5}$**	**CO**	**ROC**	**NO_X**	**SO_X**
ON-SITE EMISSIONS						
On-site combustion emissions						
Emergency firewater pump[2]	0.02	0.06	0.03	0.00	0.03	0.00
Water trucks[3]	0.019	0.017	0.148	0.082	0.319	0.000
Pickup trucks[3]	0.002	0.001	0.042	0.006	0.731	0.000
Subtotal of on-site combustion emissions	0.04	0.08	0.22	0.09	1.08	0.00
On-site fugitive dust emissions						
Water trucks[3]	0.711	0.107	--	--	--	--
Pickup trucks[3]	0.008	0.001	--	--	--	--
Subtotal of on-site fugitive dust emissions	0.72	0.11	--	--	--	--
Total on-site emissions	**0.76**	**0.19**	**0.22**	**0.09**	**1.08**	**0.00**
OFF-SITE EMISSIONS						
Off-site combustion emissions						
Worker vehicles	0.01	0.01	0.77	0.02	0.09	0.00
Total off-site emissions	**0.01**	**0.01**	**0.77**	**0.02**	**0.09**	**0.00**
TOTAL MAXIMUM ANNUAL EMISSIONS	**0.77**	**0.19**	**0.99**	**0.11**	**1.17**	**0.00**
AVAQMD THRESHOLDS	**82**	**--**	**548**	**137**	**137**	**137**

1 Refer to EIR Appendix D for more information.

2 Stationary source.

3 Mobile source.

TABLE 5.6-19
ESTIMATED CRITERIA POLLUTANT EMISSIONS
FOR CALIFORNIA GRID MIX POWER GENERATION
EQUIVALENT TO AV SOLAR RANCH ONE[1]

Air Pollutant	California Grid Mix Emission Factor (Lb/MwHr)	Annual Emissions Displaced (Tons/Year)[2]
CO	0.487	145.37
NO_X	0.227	67.78
PM_{10}	0.040	11.94
ROG	0.032	9.68
SO_X	0.0022	0.65

1 Source: Wolff, G. 2005.

2 Numbers indicate emissions in tons/year, by pollutant that would not be emitted by the proposed AV Solar Ranch One Project relative to California Grid Mix (average emissions from all sources) emissions that would be produced for an equivalent electrical generation output.

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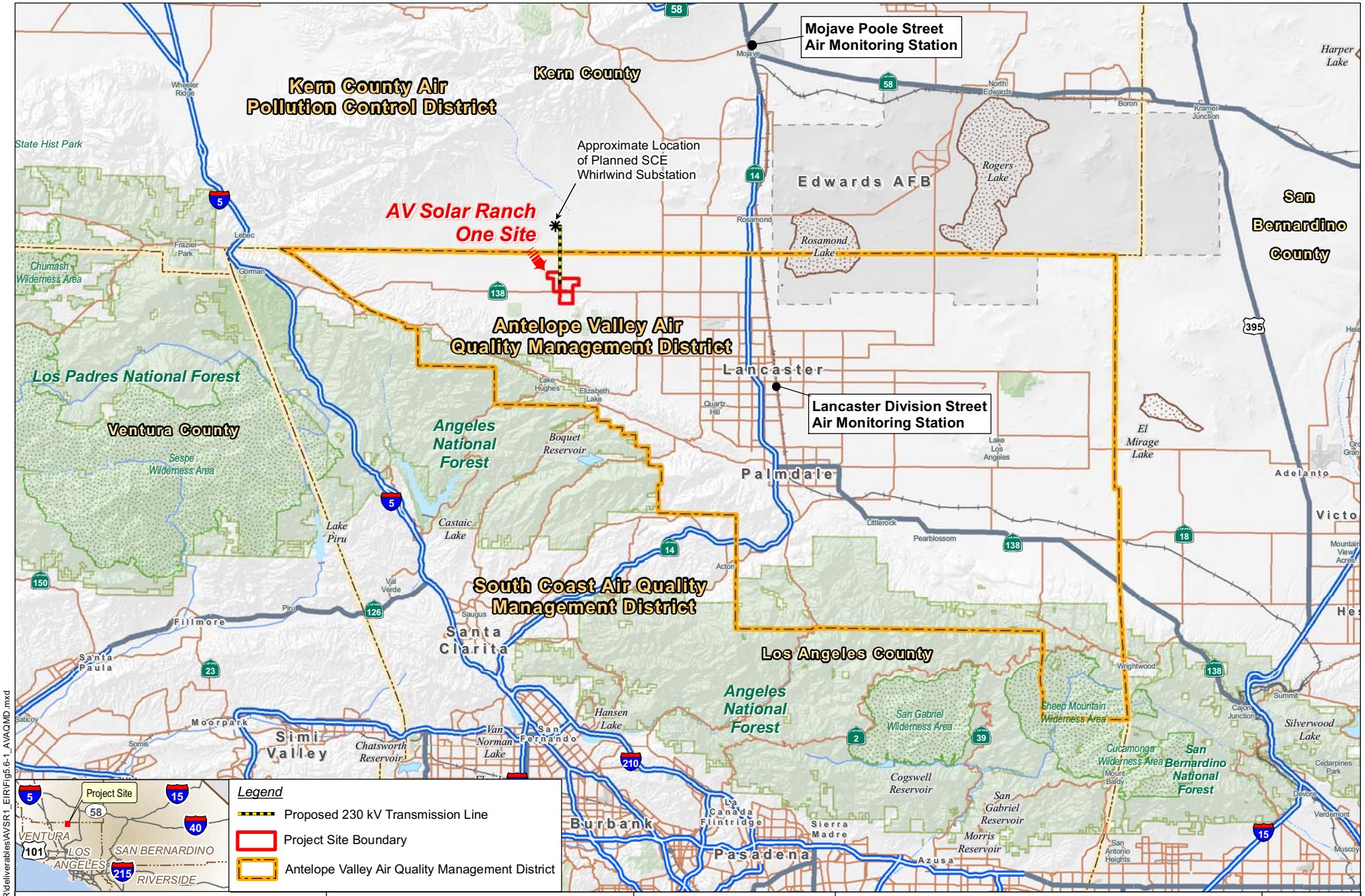

Source:
[1] ESRI StreetMap USA (2006). [2] Hillshade, 30 Meter Resolution (based on the National Elevation Dataset (NED) - U.S. Geological Survey, Teale Data Center GIS Solutions Group, USFS Region 5.

AV Solar Ranch One EIR

Figure 5.6-1. PROJECT LOCATION RELATIVE TO AIR DISTRICTS AND MONITORING STATIONS

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5.5 WATER QUALITY

This section describes the regulatory framework, environmental setting, and significance criteria, and analyzes the potential impacts to water quality associated with the proposed Project. The potential impacts are described, assessed, and mitigation measures are proposed to reduce impacts. Impacts to surface water hydrology and flood control are included in Section 5.3, Flood Hazards.

5.5.1 Regulatory Setting

This section summarizes federal, state and local laws and regulations designed to regulate water quality that are potentially applicable to the proposed Project.

5.5.1.1 Federal

5.5.1.1.1 Federal Clean Water Act. The Clean Water Act (CWA) (33 U.S.C. Section 1251 et seq.), formerly the Federal Water Pollution Control Act of 1972, was enacted with the intent of restoring and maintaining the chemical, physical, and biological integrity of the waters of the United States. The CWA requires states to set standards to protect, maintain, and restore water quality through the regulation of point source and certain non-point source discharges to surface water. Those discharges are regulated by the National Pollutant Discharge Elimination System (NPDES) permit process (CWA Section 402).

In California, NPDES permitting authority is delegated to, and administered by, the nine RWQCBs. For the proposed Project, the Lahontan Regional Water Quality Control Board (LRWQCB) has NPDES General Permit enforcement authority.

Section 303(d) of the Clean Water Act. When designated beneficial uses of a particular receiving water body are compromised by impaired water quality, Section 303(d) of the CWA requires identifying and listing that water body as "impaired." Once a water body has been deemed impaired, a Total Maximum Daily Load (TMDL) must be developed for the impairing pollutant(s). A TMDL is an estimate of the total load of pollutants from point, nonpoint, and natural sources that a water body may receive without exceeding applicable water quality standards (with a "factor of safety" included). Once established, the TMDL allocates the loads among current and future pollutant sources for the impaired water body.

States are required to compile this information in a list and submit the list to the U.S. Environmental Protection Agency (USEPA) for review and approval. This list is known as the Section 303(d) list of impaired waters. As part of this listing process, states are required to prioritize waters and watersheds for future development of TMDL requirements. The State Water Resources Control Board (SWRCB) and RWQCBs have ongoing efforts to monitor and assess water quality, to prepare the Section 303(d) list, and to develop TMDL

requirements. The proposed Project would not be expected to disrupt current or designated beneficial uses of water bodies.

In addition to the Section 303(d) listings, every two years states must submit water quality reports to the USEPA under 305(b) of the CWA. The National Water Quality Inventory Report to Congress (305[b] report) is the primary vehicle for informing Congress and the public about general water quality conditions in the United States. This document characterizes water quality, identifies widespread water quality problems of national significance, and describes various programs implemented to restore and protect our waters. The National Assessment Database summarizes information submitted electronically by the states (USEPA 2009).

Section 304(a) of the Clean Water Act. This section requires states to adopt water quality standards for receiving water bodies and to have those standards approved by the USEPA. These water quality standards consist of designated beneficial uses for a particular receiving water body (e.g., wildlife habitat, agricultural supply, fishing, etc.), along with water quality criteria necessary to support those uses. Water quality criteria consist of either prescribed concentrations or levels of constituents such as lead, suspended sediment, and fecal coliform bacteria, or narrative statements describing the quality of water that supports a particular beneficial use. Because California had not established a complete list of acceptable water quality criteria, USEPA established numeric water quality criteria for certain toxic constituents in surface waters with human health or aquatic life designated uses in the form of the California Toxics Rule (CTR) (40 C.F.R. §131.38). The final rule establishes ambient water quality criteria for priority toxic pollutants in the State of California.

5.5.1.1.2 Title 40 of the Code of Federal Regulations, Part 112 (40 CFR 112). The EPA has issued regulations governing the management of facilities with aboveground storage tanks (AST) and underground storage tanks (UST) that contain significant quantities of oil-containing products. State and local regulations are required to meet or exceed the Federal regulations.

5.5.1.2 State

5.5.1.2.1 Porter-Cologne Water Quality Control Act (Water Code, §13000 et seq.). The federal CWA places the primary responsibility for the control of surface water pollution, and for planning the development and use of water resources, with the states. However, the CWA does establish certain guidelines for the states to follow in developing their programs and allows the USEPA to withdraw control from states with inadequate implementation mechanisms.

California's primary statute governing water quality and water pollution issues with respect to both surface waters and groundwater is the Porter-Cologne Water Quality Control Act of

1970 (Porter-Cologne Act). The Porter-Cologne Act grants the SWRCB and the Regional Water Quality Control Boards (RWQCB) the power to protect water quality. It is the primary vehicle for implementation of California's responsibilities under the federal Clean Water Act. The Porter-Cologne Act grants the SWRCB and the RWQCBs authority and responsibility to adopt plans and policies, to regulate discharges of waste to surface and groundwater, to regulate waste disposal sites and to require cleanup of discharges of hazardous materials and other pollutants. The Porter-Cologne Act also establishes reporting requirements for unintended discharges of any hazardous substance, sewage, or oil or petroleum product.

Each RWQCB must formulate and adopt a water quality control plan (regional plan) for its region. The regional plan must conform to the policies set forth in the Porter-Cologne Act and established by the SWRCB in its state water policy. To implement state and federal law, the regional plan establishes beneficial uses for surface and groundwater in the region, and sets forth narrative and numeric water quality standards to protect those beneficial uses. The Porter-Cologne Act also provides that a RWQCB may include within its regional plan water discharge prohibitions applicable to particular conditions, areas, or types of waste.

5.5.1.2.2 California Water Code §13260. The California Water Code §13260 requires that any person discharging waste, or proposing to discharge waste, within any region that could affect the quality of the waters of the State, other than into a community sewer system, must submit a report of waste discharge to the applicable RWQCB. Any actions related to the proposed Project that would be applicable to California Water Code §13260 would be reported to the LRWQCB.

5.5.1.2.3 NPDES General Permit and Waste Discharge Requirements for Discharges of Stormwater Associated with Construction Activity, Order No. 99-08-DWQ. Pursuant to the CWA Section 402(p), requiring regulations for permitting of certain stormwater discharges, the SWRCB has issued a statewide general NPDES permit and waste discharge requirements for stormwater discharges from construction sites. (NPDES No. CAS000002; California Water Resources Control Board Resolution No. 2001-046; Modification of Water Quality Order 99-08-DWQ SWRCB NPDES General Permit for Stormwater Discharges Associated with Construction Activity (adopted by the SWRCB on April 26, 2001).

Under this permit, discharges of stormwater from construction sites with a disturbed area of one or more acres (effective March 2003) are required to either obtain individual NPDES permits for stormwater discharges or be covered by the general permit. Coverage under the general permit is accomplished by completing and filing a Notice of Intent with the SWRCB. Each applicant under the general permit must ensure that a Stormwater Pollution Prevention Plan (SWPPP) is prepared prior to grading and implemented during construction. The primary objective of the SWPPP is to identify, construct, implement, and maintain best

management practices (BMPs) to reduce or eliminate pollutants in stormwater discharges and authorized non-stormwater discharges from the construction site during construction.

5.5.1.2.4 Standardized Urban Stormwater Mitigation Plan. A municipal stormwater National Pollutant Discharge Elimination System (NPDES) permit issued to Los Angeles County and 85 cities by the Los Angeles County Regional Water Quality Control Board (RWQCB) on July 15, 1996, required the development and implementation of a program addressing stormwater pollution issues in development planning for private projects. On December 13, 2001, the RWQCB issued a new NPDES permit (Los Angeles County MS4 Permit), updating these program requirements.

The Standardized Urban Stormwater Mitigation Plan (SUSMP) was developed as part of the municipal stormwater program to address stormwater pollution as required by the NPDES permit. The SUSMP contains a minimum of the required Best Management Practices (BMPs) that must be used for a designated project.

5.5.1.2.5 Notice of Intent to Comply with Wastes Discharge Requirements, Order No. R6T-2003-0004. A Notice of Intent (NOI) must be filed with the LRWQCB to comply with the terms of the General Waste Discharge Requirements for Minor Streambed/Lakebed Alteration Projects (excluding the Lake Tahoe Hydrologic Unit) in accordance with Order No. R6T-2003-0004, for dredged and/or fill discharges to solely waters of the State that are: 1) greater than 0.2 acre, 2) 400 linear feet of stream bank or shoreline, and 3) 50 cubic yards of dredged material.

5.5.1.3 Local Authorities and Administering Agencies

Within Los Angeles County, surface water and groundwater quality and use are regulated by the Los Angeles County Department of Public Works (LACDPW). The LACDPW has Master Plans for many of its large flood control facilities. Water quality in the Project area within Los Angeles County is also under the jurisdiction of the (LRWQCB). Within Kern County, surface water and groundwater quality and use are regulated by the County of Kern Engineering and Survey Service (KCESS). Water quality in Kern County is also under the jurisdiction of the LRWQCB.

Local water quality control plans applicable to the proposed Project include the LRWQCB Water Quality Control Plan (Basin Plan). This plan defines water quality objectives for the jurisdiction. The Regional Board regulates the sources of water quality problems which could result in the impairment of beneficial uses or degradation of water quality, including both point sources of pollution and non-point sources of pollution (LRWQCB 1995).

5.5.1.3.1 Water Quality Control Plan (Basin Plan) for the Lahontan Region. The Basin Plan for the Lahontan Region (South and North regions) is administered by the LRWQCB.

The Basin Plan for the Lahontan Region is the master policy document that contains descriptions of the legal, technical, and programmatic bases of water quality regulation in the Lahontan Region. The Basin Plan sets forth the water quality standards for surface and groundwater, defines types of water quality problems and makes recommendations to address such problems. In addition, the Basin Plan summarizes water quality programs and identifies monitoring activities for the water resources of the area (LRWQCB 1995).

Specific criteria are provided for the larger, designated water bodies within the region, as well as general criteria or guidelines for ocean waters, bays and estuaries, inland surface waters, and groundwater. In general, the narrative criteria require that degradation of water quality does not occur due to increases in pollutant loads that would adversely impact the designated beneficial uses of a water body. For example, the Basin Plan requires that "[i]nland surface waters shall not contain suspended or settleable solids in amounts which cause a nuisance or adversely affect beneficial uses as a result of controllable water quality factors." Water quality criteria apply within receiving waters as opposed to applying directly to runoff; therefore, water quality criteria from the Basin Plan are utilized as benchmarks to evaluate the potential ecological impacts of Project runoff on the receiving waters of the proposed Project.

The Basin Plan is periodically updated. Prior to preparation and implementation of Project-related construction SWPPPs, the LRWQCB would be contacted to determine if the Basin Plan and associated beneficial uses, 303(d) listings, or TMDLs have been updated for the waterbodies potentially impacted by the Project, as applicable.

5.5.1.3.2 <u>County Code Title Chapter 12.80, Stormwater and Runoff Pollution Control</u>. Chapter 12.80 of the Los Angeles County Municipal Code requires that:

- No discharge enter the storm drain system unless such discharge:
  - Consists entirely of stormwater;
  - Consists of non-stormwater that is authorized by a NPDES permit issued by the USEPA, the state board, or a regional board, or;
  - Is associated with emergency fire fighting activity.
- Construction activity not commence for which a permit is required without implementing all stormwater and runoff pollution mitigation measures required by such permit.
- All BMPs required as a condition of any permit for construction activity be maintained in full force and effect during the term of the Project, unless otherwise authorized by the director.

- No BMP be installed or implemented that transfers pollutants to air, groundwater, surface soils and/or other media in a manner inconsistent with applicable environmental laws and regulations.
- All industrial and commercial facilities shall implement BMPs to the maximum extent practicable (Section 12.80.520).

The LACDPW requires that all drainage improvements be maintained to ensure performance at their design levels.

5.5.1.3.3 County Code Title 12 Chapter 12.84, Low Impact Development Standards. The purpose of the low impact development (LID) standards is to provide for sustainable growth while preserving the characteristics of the County's watersheds, drainage paths, water supplies, and natural resources. Chapter 12.84 guides the use of structural devices, engineered systems, vegetated natural designs, and education in order to distribute stormwater and urban runoff across a development site.

5.5.1.3.4 County Code Title 11 Chapter 11.38, Water and Sewers. The Project proposes to use existing on-site wells for process water uses and/or one or more new wells that may be constructed for process and domestic water. Chapter 11.38 (Water and Sewer) specifies requirements for operation of existing wells as well as construction and operation of new wells.

5.5.2 Environmental Setting

Surface water and groundwater in the Project area were evaluated by reviewing maps showing the water bodies and drainages, by reviewing studies completed by and for state and local water agencies, by obtaining information from city, regional, county, and state water agencies, and from direct groundwater sampling.

Within Los Angeles County, surface water and groundwater quality and use are regulated by the LACDPW. Water quality in the Project area within Los Angeles County is also under the jurisdiction of the LRWQCB. Within Kern County, surface water and groundwater quality and use are regulated by the KCESS. Water quality in Kern County is also under the jurisdiction of the LRWQCB.

5.5.2.1 Project Site

The proposed Project is located in the Antelope Valley area in unincorporated Los Angeles County, approximately 15 miles northwest of downtown Lancaster. The property consists of approximately 2,100 acres of primarily undeveloped land.

The region lies within the Antelope Valley of Los Angeles County. The property itself is relatively flat, sloping gently downward (1 to 2 percent) to the northeast from approximately 2,720 to 2,600 feet elevation above mean sea level.

5.5.2.1.1 Groundwater. The Antelope Valley Groundwater Basin is located within the South Lahontan Hydrologic Region and is designated as Groundwater Basin Number 6-44. The Antelope Valley Groundwater Basin underlies an extensive alluvial valley in the western Mojave Desert with elevations ranging from 2,300 to 3,500 feet above sea level. The basin is bounded on the north and northwest by the Garlock Fault at the base of the Tehachapi Mountains, and on the south and southwest by the San Andreas Fault at the base of the Transverse Ranges including the San Gabriel Mountains (Figure 5.2-1).

The surface area of the entire Antelope Valley Groundwater Basin is over 1 million acres (1,580 square miles) and is topographically closed. All rainfall within the basin drains through ephemeral creeks and streams to three dry lakes in the east-central portion of the Antelope Valley, located within the Edwards Air Force Base. Little Rock Creek is the only developed surface water supply in the Antelope Valley, and collects runoff from the San Gabriel Mountains. Due to the relatively impervious nature of the dry lake soil and high evaporation rates, water that collects on the dry lakes largely evaporates and is not a significant source of recharge to aquifers (RWMG 2007).

The primary water-bearing materials in the Antelope Groundwater Basin are Pleistocene and Holocene age alluvial and lacustrine deposits consisting of compact gravels, sand, silt, and clay (RWMG 2007). Recharge to the basin is primarily from perennial runoff from the surrounding mountains and hills. Most recharge occurs at the foot of the mountains and hills by percolation through the head of the alluvial fan system (Durbin 1978).

The Geotechnical Engineering Report (Terracon 2009) prepared for the Project indicates that ground water depths in the Project area range from approximately 130 feet to over 200 feet below ground surface (bgs). Additionally, water depths taken from the existing on-site agricultural well indicate a water depth of approximately 140 feet bgs (URS 2009).

Based on available data from the California Department of Water Resources (DWR 2004), water quality in the basin is excellent due to its low total dissolved solids (TDS) levels near the boundaries of the basin, and deteriorates with proximity to the dry lakes. Groundwater is typically calcium bicarbonate in character near the surrounding mountains and is sodium bicarbonate or sodium sulfate character in the central part of the basin. Data from 213 public supply wells across the basin shows an average TDS content of 374 milligrams per liter (mg/L), and range from 123 to 1,790 mg/L (DWR 2004).

The proposed Project area is located in the westernmost Lancaster Groundwater Sub-Basin within a triangular subarea formed by the apex intersection with the northwestern boundary

being the southern edge of the Neenach Fault (Durbin 1978). The southern boundary is the southern edge of the Antelope Valley Groundwater Basin and the eastern boundary is a southwest-to-northeast trending line through the Antelope Buttes and the Little Buttes. The historic water quality analyses for the wells within the Project area indicate total dissolved solids concentrations from 174–476 mg/L averaging about 249 mg/L for 9 wells sampled between 1949 and 2008 (DWR 1965). For reference, the USEPA has established a secondary water quality standard of 500 mg/l for TDS to provide for palatability of drinking water.

Currently, the operational wells on the Project site include: 1) a domestic well that supplies the existing ranch houses, and 2) an agricultural well formerly used for irrigation (Well 8N/15W-24B3). These wells may be used to supply process water during construction and operation, but will not be used as domestic water supply for the Project. In order to characterize historic and current groundwater resources of the proposed Project site, testing of an irrigation well located on the Project property was performed by URS in 2009. URS also reviewed available documents on water use in the area, performed pump/recovery testing and a video log for the on-site irrigation well (Well 8N/15W-24B3), and conducted water quality testing for the on-site irrigation well. The results of the testing are summarized in the report, Groundwater Characteristics at the AV Solar Ranch One Site, Southwestern Antelope Valley, Los Angeles County, California, included as Appendix J to this EIR (URS 2009).

Well 8N/15W-24B3 does not contain a sanitary seal and therefore, would not be used for Project domestic/potable water use. However, as evidenced by the data from wells in the Project area (as indicated in the Groundwater Report, Appendix J of this EIR), the water quality of this well is indicative of aquifer groundwater quality at the site.

Water quality testing (URS 2009) concluded that the on-site well water is of high quality, as indicated by: 1) its low TDS of 226 mg/l (i.e., compared to USEPA secondary drinking water standard of 500 mg/l); 2) detection of only one organic chemical (chloromethane at 1.7 micrograms per liter [µg/l] that was well below the Lifetime Health Advisory of 30 µg/l and Drinking Water Equivalent Level Advisory of 100 µg/l; and 3) radiological levels that are below state Maximum Contaminant Levels or Action Levels (USEPA 2006) (refer to Table 2 in Appendix J of this Draft EIR for an itemization by radiological constituent).

The Project site had been farmed since the 1950s, and was irrigated from the 1950s through 2004. During approximately the late 1960s through the early 1990s, the agricultural well was typically used to irrigate crops (primarily alfalfa) on parcels of land that were approximately 100 acres in size (Larsen 2010). Based on current estimates of irrigation water requirements of 7.76 AFY per acre per year for alfalfa in the Antelope Valley (RWMG 2007), the historic agricultural water use on the Project site for alfalfa was approximately 776 AFY occurring as

recently as the early-1990s (Larsen 2010). This water use occurred as recently as 1992 (Larsen 2010).

As recently as 2004, the irrigation well was used to irrigate onions on approximately 80 acres of land (Larsen 2010). Based on current estimates of irrigation water requirements of 4.89 AF per acre per year for onions in the Antelope Valley (RWMG 2007), the agricultural water use on the Project site as recently as 2004 for onions was approximately 392 AFY.

Groundwater was also used for domestic purposes at the farmhouse; however, no records have been located that quantify the amount of groundwater used at the residence for domestic and farm operation related purposes. However, using information from RWMG 2007, household water use for a farmhouse residence is estimated to be approximately 1 AFY. This water use occurred as of the date the NOP was filed for the Project in April of 2009.

5.5.2.1.2 Surface Water and Drainages. The proposed Project is located in the Antelope Valley Hydrologic Unit, which includes desert, localized mountains, and dry lake beds. This Unit receives runoff from Big Rock and Little Rock Creeks from the San Gabriel Mountains and from Oak Creek and Cottonwood Creek in the Tehachapi Mountains. The surface water drains toward the closed basin of Rosamond Lake within the boundaries of Edwards Air Force Base (refer to Figures 4.3-1 and 5.3-1).

The Project site is traversed by three primary ephemeral drainages (Drainages A, B, and C), as shown on Figures 4.4-1A and 5.3-3. A fourth ephemeral drainage (Drainage D) is located at the northeastern property boundary and only a small portion of the southern bank of the drainage is on Project site. The proposed Project development avoids all drainages within the site boundaries.

5.5.2.2 Off-site Transmission Line Route

The proposed 230-kilovolt (kV) transmission line consists of an approximately 3.5-mile-long off-site segment and a 0.75-mile-long on-site segment. The total transmission line length is approximately 4.25 miles, and is proposed to be located within the public ROW of 170th Street West and adjacent private properties to interconnect to SCE's planned Whirlwind Substation north of the Project site in southern Kern County (refer to Figures 4.3-2 and 4.3-4A and B). The northern portion of the proposed transmission line route (approximately 2 miles) is located in southern Kern County and generally consists of agricultural land within the Willow Springs Specific Plan area. The portion of the proposed transmission line route in Kern County potentially includes approximately 1.5 miles within the western portion of the Antelope Valley Water Bank Project area on the east side of 170th Street West or the adjacent public road ROW.

5.5.3 Project Impacts

The impacts of Project implementation are discussed for each of the threshold criteria identified below. Wherever a significance threshold is exceeded or wherever there is potential for a threshold to be exceeded, feasible mitigation measures are identified.

5.5.3.1 Methodology and Significance Criteria

The potential for the proposed Project to impact water quality is based on the CEQA significance criteria as specified by the Los Angeles County Department of Regional Planning (LACDRP). Potential impacts have been assessed using the following criteria from the LACDRP Initial Study Environmental Checklist (see Appendix A of this document):

- Is the Project site located in an area having known water quality problems and is proposing the use of individual water wells?
- Is the Project site located in an area having known septic tank limitations due to high groundwater or other geotechnical limitations or is the Project proposing on-site systems located in close proximity to a drainage course?
- Could the Project's associated construction activities significantly impact the quality of groundwater and/or stormwater runoff to the stormwater conveyance system and/or receiving water bodies?
- Could the Project's post-development activities potentially degrade the quality of stormwater runoff and/or could post-development non-stormwater discharges contribute potential pollutants to the stormwater conveyance systems and/or receiving bodies?

5.5.3.2 Impact Analysis

5.5.3.2.1 Criteria 1: Is the Project site located in an area having known water quality problems and proposing the use of individual water wells?

The use of individual on-site wells appears to offer the most practical, reliable, and cost-effective water supply in the area. The Applicant has explored the possibility of utilizing reclaimed water. However, the closest interconnection for reclaimed water is at least several miles east of the Project site, and would require construction of a pipeline across private land. At this time, use of off-site reclaimed water is considered to be infeasible, as the Applicant does not have site control of the lands required for a reclaimed water pipeline to the site.

Based on on-site pump test data as well as historical data and groundwater studies, the proposed Project is not in an area having known water quality problems, nor is Project groundwater extraction expected to have a significant impact on the Antelope Valley Groundwater Basin or the groundwater supply in the area.

On-site Pump Test Data. As described in Section 5.5.2.1.1, data from the testing performed in 2009 on the on-site irrigation well indicate that groundwater at the Project site and vicinity (including the off-site transmission line) is of high quality. This is also supported by data from wells in the surrounding area (URS 2009; refer to Appendix J of this EIR); these data also suggest that water quality has not changed significantly over time. Thus, the Project site and transmission line are not in an area having known water quality problems.

The primary water supply for the Project would be from on-site wells (see Figure 4.4-1A). Currently, two operational wells exist on the Project site: 1) a domestic well that supplies the existing ranch houses; and 2) an agricultural well formerly used for irrigation (Well 15W/8N-24B3). These existing wells may be used for process water for construction and operations, but not for domestic purposes. Domestic water supply during construction would be supplied by: 1) a new well drilled adjacent to the existing irrigation well or in the vicinity of the O&M building; or 2) a water supply contractor. Domestic water during operations would be supplied by a new well drilled adjacent to the existing irrigation well or in the vicinity of the O&M building. Any new wells drilled for domestic purposes would be developed as per Los Angeles County Department of Public Health Standards.

Based on the well data and pump test results summarized in Section 5.5.2.1.1, potential impacts related to water quality associated with Project use of groundwater at the site are not expected, and impacts would be less than significant. Refer to Section 5.14 (Utility Services) and Appendix J for more information regarding groundwater resources.

5.5.3.2.2 Criteria 2: Is the Project site located in an area having known septic tank limitations due to high groundwater or other geotechnical limitations or is the Project proposing on-site systems located in close proximity to a drainage course?

Construction. Sanitary needs during construction of the facility site and off-site transmission line would be served by portable toilets, which would be maintained on a weekly basis through contracted services. Thus, no on-site wastewater treatment systems such as septic systems would be used and no impacts would occur.

Operation. During Project operation of the site facilities and off-site transmission line, wastewater from sinks, toilets, and other sanitary facilities would be collected and discharged to an on-site septic and leach field system. Approximately 16 operating personnel would routinely utilize the on-site wastewater facilities, and are expected to generate an estimated 50 to 60 gallons of wastewater per person per day, for a total of about 800 to 1,000 gallons per day.

The Water Quality Control Plan (Basin Plan) for the Lahontan Region requires that commercial or industrial facility discharges to a septic tank/leach field system not exceed a

maximum discharge density of 500 gallons per day per acre. Given the Project development size (approximately 2,100-acre site) and its estimated discharge of 800 to 1,000 gallons per day (worst case), the Project's discharge density would be approximately 0.38 to 0.48 gallon per day per acre. Therefore the Project's proposed discharge to the septic system would be within the limit for compliance as specified by the Basin Plan (LRWQCB 1995).

To meet the above usage requirements, the proposed septic/leach field system would consist of a buried 1,000-gallon septic tank and a leach field that would be approximately 60 feet wide by 120 feet long. This system would be designed in accordance with the requirements of the LRWQCB, Los Angeles County Department of Public Works (LACDPW) and the Los Angeles County Department of Public Health (LACDPH), and would be located in the vicinity of the Project O&M building (see Figure 4.4-5A).

As proposed, the location of the septic/leach field system would be in compliance with the minimum distance siting requirements of the LRWQCB Basin Plan for Individual Wastewater Treatment Systems (LRWQCB 1995) and the LACDPH Application Procedures for Approval of an On-site Wastewater Treatment System (LACDPH 2000). These siting requirements specify minimum distances of 25 feet (septic tanks) and 50 feet (leach fields) from ephemeral drainages, and 50 feet (septic tanks) and 100 feet (leach fields) from domestic wells. As shown on Figure 4.4-1A, the septic tank/leach field system would be located over 0.25 mile from Drainage A (the nearest ephemeral drainage – no perennial waters exist on-site) and about 1 mile from the existing on-site wells. If a new well is drilled in the vicinity of the O&M building it would be located in accordance the above septic tank/leach field siting requirements.

Potential Impact 5.5-1: Septic System and Leach Field Impacts to Water Quality.

There are no known groundwater or geotechnical limitations for a septic tank/leach field system. The depth to groundwater in the Project area is expected to range from 130 feet to over 200 feet (Terracon 2009), and in the vicinity of Well 8N/15W-24B3 was confirmed at approximately 140 feet bgs. For reference, the LACDPH typically requires a minimum 10-foot separation distance between sewage disposal systems and the groundwater table (LACDPH 2000). Thus, there is an adequate separation distance for leach field discharge infiltration and no potential impacts due to high groundwater are anticipated.

Additionally, the Project site soils appear appropriate for a septic tank/leach field system, which is the predominate means of sanitary disposition in the Project area. Based on the Project Geotechnical Engineering Report (Terracon 2009), the Project site is characterized by the Hanford-Greenfield soil associations, which are well-drained soils with moderately rapid subsoil permeability. Terracon (2009) in-situ testing indicates that these soils are suitable for a septic tank/leach field system; infiltration test results range from 2 to 8 inches per hour (5

inches/hour on average), and percolation test results ranged from 9 to 25 minutes per inch (17 minutes/inch on average).

Based on the above information and data, the proposed septic/leach field system is not expected to have limitations due to groundwater or geotechnical considerations, its proposed location would be in compliance with applicable requirements, and no significant impacts to groundwater, on-site surface water drainages, or existing or future Project wells would be expected to occur.

Prior to construction/installation of the on-site septic/leach field system, a complete On-site Wastewater Treatment System (OWTS) feasibility report would be submitted to the LACDPH for review and approval and to ensure the system would meet the LACDPH standards, as required by Mitigation Measure 5.5-1 in Section 5.5.5.

5.5.3.2.3 Criteria 3: Could the Project's associated construction activities significantly impact the quality of groundwater and/or stormwater runoff to the stormwater conveyance system and/or receiving water bodies?

The depth of groundwater is expected to range from 130 feet to over 200 feet bgs in the area of the Project facility site and off-site transmission line (Terracon 2009), and has been confirmed at approximately 140 feet bgs at the on-site irrigation well (Well 8N/15W-24-B3). Due to the depth to groundwater, the short-term and temporary nature of construction, and the implementation of SWPPP/SUSMP BMPs as described below (which would minimize the potential for construction-related discharges and associated impacts), it is not expected that construction of the facility site or off-site transmission line would have a significant impact to groundwater quality.

Facility and transmission line construction activities could have a potential impact to the quality of local stormwater runoff due to erosion and excess sedimentation; however, the Project area is within a closed basin that has no connections to "Waters of the U.S.," perennial streams, or outside receiving waters. As described below, construction activities would be performed in conjunction with a SWPPP and SUSMP, through which BMPs would be implemented such that potential impacts to stormwater quality would be mitigated to a less than significant level.

During construction, Project activities would involve earth disturbance, limited clearing of existing vegetation, and use of construction equipment and vehicles. Construction-related activities that are primarily responsible for sediment releases are related to exposing soils to potential mobilization by rainfall/runoff and wind. Environmental factors that affect erosion include topography, soil, and rainfall characteristics. Non-sediment-related pollutants that are also of concern during construction include construction materials such as chemicals, liquid products, and petroleum products used in facility construction or the maintenance of heavy

equipment. Hydrocarbons in site runoff could result from construction equipment/vehicle fueling or spills, which would be a potentially significant impact.

Areas disturbed due to Project construction activities would be stabilized during construction to minimize wind and water erosion and generation of fugitive dust by watering and/or the use of dust palliatives or tackifiers. Chipped mulch created as a result of vegetation removal, may also be spread on-site for this purpose, as appropriate. Cleared and graded surfaces that would not be subject to future disturbance would be revegetated as practical to minimize dust and erosion. Revegetation would be conducted as soon as practicable, based on seasonal weather conditions, to maximize revegetation success. To facilitate redevelopment of on-site vegetation, topsoil generated by Project grading would be saved and spread over disturbed areas, as available.

Due to the removal or disturbance of soil and vegetation during construction, appropriate water erosion and dust-control measures would be required to minimize dust and sediment load to ephemeral washes around the construction site. Vegetation would be mulched or composted on-site to assist in erosion control and limit waste disposal.

Dust palliatives are proposed to be used to minimize fugitive dust emissions during construction and would be applied in accordance with manufacturer's recommendations on barren soil areas such as compacted soil construction roads. Dust palliatives are typically biodegradable, dispersible dry powdered or water-based copolymers used to stabilize and solidify soil as well as provide erosion control and dust suppression. The Project would utilize palliatives that are non-hazardous, free of asphalt or solvent, non-flammable, non-carcinogenic, and environmentally inert. Dust palliatives create a surficial layer of soil that is bound together, essentially acting as a flexible covering.

Soil tackifiers are proposed to be used to stabilize disturbed soil surfaces (via binding loose soil particles together) during construction in order to minimize fugitive dust and water erosion. Soil tackifiers are typically a liquid blend of acrylic resins or other binding polymers and are typically supplied in a concentrated form (liquid or powder) to be diluted with water prior to use. These compounds are usually dry, clear, and non-phytotoxic to plants. Certain tackifiers are formulated from both long-chain or cross-linking molecules in conjunction with a hydrocolloid vegetable-gum based tackifier to provide effective soil structure stabilization, water infiltration, and most importantly to adhere to the soil surface. The tackifiers proposed to be used would be comprised of environmentally inert materials (resins, polymers, guar gum, etc.).

Once applied and allowed to dry, dust palliatives and tackifiers are resistant to migration by water or wind, and thus provide minimal threat to surface or groundwater sources. Potential impacts to surface water would be avoided by appropriate application. By design, the

tackifiers and palliatives preferentially bind to soil particles and are rendered non-mobile and hydrophobic within a short time. Tackifiers have long-chain structures that form an interlocking mat, and do not migrate during normal rain events, thus stabilizing sands and silts. Palliatives preferentially bind soil particles together to form essentially a large aggregate surface. These bound particles are themselves inert and immobile. There are no perennial surface water bodies on or near the Project site, and the proposed setbacks of Project facilities and development areas from the two primary on-site ephemeral drainages are a minimum of 100 feet (i.e., Drainages A and C). The depth to groundwater at the site is expected to be greater than 130 feet (Terracon 2009). Given the aforementioned factors and the general immobility and environmentally non-toxic and inert characteristics of the proposed palliatives and tackifiers to be used, potential impacts to surface and groundwater resources associated with use of soil palliatives and tackifiers during construction of the proposed Project would be expected to be less than significant.

As described previously in Section 5.3.3.2.4, Flood Hazards, the potential for impacts to surface and stormwater quality due to construction activities are expected to be minimized through compliance with the construction SWPPP and SUSMP, as well as implementation of Project design and applicant-committed stormwater management measures. The following measures are required by Mitigation Measure 5.3-1 (Erosion Control and Stormwater Management Measures) in Section 5.3, Flood Hazards:

In order to ensure that Project-related erosion and debris deposition as well as stormwater related impacts would be minimized, the design measures specified in the Drainage Concept Report (Psomas 2009) and the following measures shall be implemented subject to review and approval by the Los Angeles County Department of Public Works (LACDPW):

- Avoidance of all drainage areas: Construction and operational phase activities shall avoid all on-site drainages and FEMA Zone A floodplain areas. Solar field development shall be set back from the two major drainages (Drainages A and C) by a minimum of approximately 100 feet from the tops of banks for both Drainages A and C. Additionally, all Project development shall be set back a minimum of 100 feet from the FEMA Zone A floodplain for Drainage C.
- Applicant shall comply with NPDES requirements of the Lahontan Regional Water Quality Control Board (LRWQCB) and the LACDPW.

Given the above considerations, that include: 1) no drainage connections to "Waters of the U.S." perennial streams, or outside receiving waters; 2) avoidance of all drainage areas by construction; and 3) implementation of SWPPP and SUSMP BMPs, the impacts of facility and transmission line construction activities on stormwater conveyance systems or receiving water bodies, and surface water quality are expected to be less than significant. The aforementioned measures would be implemented in accordance with Mitigation Measure

5.3-1 (Erosion Control and Stormwater Management Measures) as presented in Section 5.3.5.

5.5.3.2.4 Criteria 4: Could the Project's post-development activities potentially degrade the quality of stormwater runoff and/or could post-development non-stormwater discharges contribute potential pollutants to the stormwater conveyance systems and/or receiving bodies?

The primary non-stormwater discharges during Project operations would be sanitary wastewater and PV panel wash water. As previously discussed in Section 5.5.3.2.2, groundwater used for sanitary purposes may be treated with a water softening system that would remove minerals such as calcium and magnesium. The quality of the sanitary wastewater stream that would be discharged to an underground septic tank/leach field system would not be adversely impacted by the water softening system. The brine effluent from the water softening system would be periodically collected and recycled by a vendor (i.e., not discharged to the on-site septic system). No significant water quality impacts (either to surface water or groundwater) would be expected to occur associated with use of the on-site septic system.

Soil palliatives and tackifiers are proposed to be used to control fugitive dust on compacted soil roadways on the site and to stabilize other disturbed soil surfaces as needed. As described above in Section 5.5.3.2.3, these materials would be used in accordance with manufacturer's recommendations and would not be used within 100 feet of ephemeral Drainages A and C or within the development setbacks for Drainages B (20 feet) and D (50 feet) on the site. No potentially significant impacts to surface water runoff would be expected to occur as a result of use of soil palliatives and tackifiers during the operation phase.

Herbicides are proposed to be used selectively to control vegetation as described in Section 4.4.7.2. Herbicides (as approved by LACDRP) would be used to control noxious weeds primarily after the first growing season following construction) or vegetation in areas where mechanical methods are restricted due to the presence of equipment or facilities. Herbicides such as glyphosphate (Round-Up) would be used. Glyphosphate focuses only on plant matter and has a short half-life (approximately 50 days). Glyphosphate is soluble, but adsorbs to organic matter in the soil rather than readily migrating. Herbicides would be used in accordance with manufacturer's recommendations and would not be used within 100 feet of ephemeral Drainages A and C or within the development setbacks for Drainages B (20 feet) and D (50 feet) on the site. No potentially significant impacts to surface water runoff would be expected to occur as a result of selective use of herbicides on-site during the operation phase. All proposed herbicides to be used during the operational phase would be approved in advance by the LACDRP.

It is expected that panel washing would occur twice per year over a 3-4 week period (approximately 21 working days) for each event. Four diesel-fueled water wash trucks would be used for the washing operation with one of the trucks used for temporary access road watering where needed for dust control. The wash water would be sprayed from nozzles mounted directly on the water trucks or via manually operated hoses connected to the water trucks. The volume of water per panel per wash would range from 5 gallons to 14 gallons depending on the PV technology selected and associated panel size and number; however, the total amount of water used would be approximately 4.5 acre-feet per event (or approximately 9 AFY). No detergents, surfactants, or other additives are currently planned to be used in the wash water, which would contain only sediment deposited on the panel faces from airborne dust particles. Similar to when it rains, the small quantities of wash water at each panel location would be allowed to drain to the ground surface, where it would be quickly absorbed and/or evaporated. As such, no impacts to surface water due to these washings would be expected to occur.

The potential for impacts to surface and stormwater quality due facility site and off-site transmission line operations are expected to be minimized through implementation of BMPs as well as Project design and applicant-committed stormwater management measures. These are described as follows:

- Project site and transmission line facilities would avoid all drainages. No observed drainages are located on the transmission line route (note: the USGS Fairmont Butte topographic map identifies a blue line drainage but it was not found during a streambed delineation survey conducted for this Project in 2009 [refer to Section 5.7.3.2.2, Biological Resources]), and the development setback from the two major drainages on the Project facility site (Drainages A and C) would be a minimum of approximately 100 feet.
- Hazardous materials and wastes would be stored in the O&M warehouse and managed in accordance with applicable regulations as discussed in Section 5.15. On-site transformers would contain mineral oil; however, appropriate secondary containment would be provided and periodic inspections and maintenance would be performed to identify and implement corrective actions, as necessary.
- Herbicides may be used to control noxious weeds within the solar array or to maintain the fire breaks. However, use of such herbicides would be approved by the LACDRP and would be applied by qualified personnel.
- Earth disturbing activities during operations would be primarily limited to maintenance of the firebreaks, infiltration basins, or access roads (refer to Section 4.4.7.2). However, implementation of the BMPs described below is expected to minimize potential impacts related to erosion and sedimentation potentially associated with these activities.

As required by Title 12, Section 12.80.520 of the Los Angeles County Code, BMPs for spill and erosion control would be implemented during Project operations to minimize the potential for impacts to stormwater runoff. These BMPs would also ensure compliance with the LRWQCB Basin Plan (LRWQCB 1995), and any applicable individual Project permit (with associated Waste Discharge Requirements) required by LRWQCB. Applicable BMPs would be selected from the: 1) LRWQCB Basin Plan, 2) CASQA Stormwater Best Management Practice Industrial and Commercial Handbook (CASQA 2003b), and 3) the Los Angeles County LID Standards Manual (LACDRP 2009). Minimum BMPs would include:

- Good housekeeping practices and site revegetation where applicable
- Regularly scheduled site inspections, monitoring, and maintenance of site facilities including on-site drainage channels
- Maintaining spill prevention and control procedures
- Monitoring of soil erosion and revegetation efforts and implementation of remedial activities, as necessary
- Ensure stormwater runoff continues to be directed away from operating, processing, fueling, cleaning, and storage areas

As described in Section 5.3.3.2.4, Flood Hazards, infiltration basins would be installed in accordance with the Los Angeles County Low Impact Development (LID) Standards, as well as the Los Angeles County Department of Public Works (LACDPW) requirements. The infiltration basins would function as a series of detention basins that would detain the excess stormwater runoff flow and volume on-site and let the detained stormwater infiltrate into the ground. In addition to balancing the runoff volume, the infiltration basins would also serve as an erosion and debris control BMP. Stormwater runoff would flow into the basins, thereby reducing its velocity and decreasing its erosion potential and sediment load. The Drainage Concept Report (Appendix C) provides quantities of pre-and post-development flows and volumes for the Project site that represent the Los Angeles County Capital Flood 50-year Burned and Bulked Condition (worst case flood). The calculated pre-development flows leaving the Project site range from 9.43 to 4,796.14 cubic feet per second (cfs), and the post-development flows (with Project design measures applied) range from 9.15 cfs to 4,802.19 cfs. Pre- and post-development flow volumes range from 2.28 to 853.67 acre-feet and 2.42 to 851.27 acre-feet, respectively. A sediment transport analysis for the pre- and post-development condition was determined to not be necessary since Project development of the site would not modify the flow velocity, flow volume, and/or depth/width of flow for the natural incised channels within the Project site. Refer to Appendix C of this Draft EIR for more information. Based on the above considerations, and given the implementation of the above Project BMPs, design measures, and applicant-committed stormwater management procedures, operation of the facility site and off-site transmission line are not expected to

significantly degrade the quality of stormwater runoff or contribute significant amounts of pollutants to stormwater conveyance systems or receiving bodies. As such, potential impacts to surface water quality due to post-development activities are expected to be insignificant.

5.5.3.2.5 Indirect Impacts. No indirect impacts have been identified with respect to water quality from the proposed Project site or off-site transmission line.

5.5.4 Cumulative Impacts

A list of cumulative projects considered is presented in Section 4.6.

Water pollutants that could be released from development associated with the proposed Project and other potential cumulative projects could include runoff laden with sediment, vehicle and equipment fluids, household chemicals, trash, landscaping by-products, and other typical urban stormwater pollutants. NPDES was established to regulate stormwater pollution, and all new development including the proposed Project would be required to comply with the conditions of applicable NPDES permits.

Additionally, such development would be required to be in compliance with the LRWQCB Basin Plan (LRWQCB 1995). The Basin Plan is a regional plan designed to reduce the pollutant levels of receiving waters, and thus is intended to achieve a cumulative reduction in water pollutants. Compliance with the plan would ensure that future development in the proposed Project area would not substantially contribute to cumulative water quality impacts. Therefore, the proposed Project, in conjunction with other approved and proposed Projects, would not be expected to result in significant cumulative impacts on surface water quality.

Future development in the proposed Project area, such as the Fairmont Butte Motorsports Park, would likely increase impermeable surfaces and, as a result, increase the volume of stormwater runoff that may be directed to applicable storm drain systems and/or off-site drainages. However, as discussed in Section 5.5.3.2.4, the Project is designed to balance pre- and post-construction runoff volumes and any increases due to the Project would be insignificant. Additionally, through implementation of the above BMPs and Project design/applicant-committed measures, the proposed Project would not be expected to significantly contribute to deleterious effects on surface water quality. Since the proposed Project would not cumulatively contribute to significantly increased amounts of either stormwater runoff or pollution, the potential for cumulative effects on surface water quality is expected to be less than significant.

5.5.5 Mitigation Measures

Implementation of the above construction SWPPP/SUSMP BMPs, Project design measures, applicant-committed stormwater management BMPs, as well as spill and erosion prevention

and control BMPs would reduce the potential surface water quality impacts to less than significant levels. Additionally, potential surface water quality impacts related to flood hazards associated with operation of the proposed Project would be less than significant with implementation of Mitigation Measure 5.3-1 (Erosion Control and Stormwater Management Measures) presented in Section 5.3.5. In order to ensure that the operation of the proposed on-site septic/leach field system would not adversely impact water quality, the following mitigation is proposed.

Mitigation Measure 5.5-1: On-site Wastewater Treatment System (OWTS) Feasibility Report. Prior to construction/installation of the on-site septic/leach field system, a complete OWTS feasibility report shall be submitted to the LACDPH for review and approval. The feasibility report shall be prepared in conformance with the requirements outlined in the current version of LACDPH guidelines, "On-site Wastewater Treatment System Guidelines."

5.5.6 Level of Significance after Mitigation

The proposed Project is not expected to significantly impact existing water quality conditions or create additional water quality issues during construction or operation. As described above, a site-specific construction SWPPP/SUSMP BMPs would be implemented, as well as operational BMPs, to ensure protection of water quality and minimization of potential impacts to less-than-significant levels.

5.5.7 References

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5.4 FIRE HAZARDS

This section describes the regulatory framework, environmental setting, and significance criteria, and analyzes the potential fire hazards associated with the proposed Project. The potential hazards are described, potential Project-related impacts are assessed, and mitigation measures are proposed to reduce impacts.

5.4.1 Regulatory Setting

5.4.1.1 Federal

5.4.1.1.1 International Fire Code. The International Fire Code (IFC) contains regulations relating to construction and maintenance of buildings and the use of premises. Topics addressed in the IFC include fire department access, fire hydrants, automatic sprinkler systems, fire alarm systems, fire and explosion hazards safety, hazardous materials storage and use, provisions intended to protect and assist fire responders, industrial processes, and other general and specialized fire-safety requirements for new and existing buildings and premises. The Code contains specialized technical regulations related to fire and life safety, and provisions for storage and handling of hazardous materials. The Los Angeles County Fire Department (LACFD) has adopted (except where otherwise noted) and incorporated the IFC into the County Fire Code.

5.4.1.1.2 National Fire Protection Association. The National Fire Protection Association (NFPA) prescribes minimum requirements necessary to establish a reasonable level of fire safety and property protection from the hazards created by fire and explosion. The standards apply to the manufacture, testing, and maintenance of equipment.

5.4.1.2 State

5.4.1.2.1 California Fire Code (Title 24, Part 9, California Code of Regulations). The California Fire Code (CFC) is Part 9 of the California Code of Regulations, Title 24, also referred to as the California Building Standards Code. The CFC incorporates the UFC standards but also includes State regulations and standards. This CFC prescribes regulations consistent with nationally recognized minimum standards for the safeguarding to a reasonable degree of life and property from the hazards of fire explosion, and dangerous conditions arising from the storage, handling and use of hazardous materials and devices, and from conditions hazardous to life or property in the use or occupancy of buildings or premises and provisions to assist emergency response personnel. The LACFD has adopted (except where otherwise noted) and incorporated the CFC into the County Fire Code. All new buildings within Los Angeles County must conform to standards within the CFC.

5.4.1.2.2 California Health and Safety Code. State fire regulations set forth in Section 13000 et seq. of the California Health and Safety Code, include regulations for building standards (as also set forth in the California Building Code), fire protection and notification systems, fire protection devices such as extinguishers and smoke alarms, high-rise building and childcare facility standards, and fire suppression training.

5.4.1.2.3 Public Resources Code (PRC) 51175-51189. Government Code 51175-51189 directs the California Department of Forestry and Fire Protection (CAL FIRE) to map areas of very high hazard within Local Responsibility Areas (LRA). Mapping of the areas, referred to as Very High Fire Hazard Severity Zones (VHFHSZ) is based on relevant factors such as fuels, terrain, and weather. Based on the CAL FIRE recommended Fire Hazard Severity Zones maps for Los Angeles County and Kern County, the Project (facility site and proposed transmission line route) is not located within Very High or High Fire Hazard Severity Zones (CAL FIRE 2007a and 2007b).

5.4.1.2.4 Public Resources Code (PRC) Section 4292, Power Line Hazard Reduction. This section requires that any person who owns, controls, operates, or maintains any electrical transmission or distribution line upon any brush-covered land or grass-covered land shall maintain around and adjacent to any pole that supports a switch, fuse, transformer, lightening arrester, line junction, or dead end or corner pole, a firebreak which consists of a clearing of not less than 10 feet in each direction from the outer circumference of such pole. The applicable Project 34.5-kV and 230-kV transmission line poles will be maintained in accordance with this code section.

5.4.1.2.5 Public Resources Code Section (PRC) 4293, Power Line Clearance Required. This section requires that any person who owns, controls, operates, or maintains any electrical transmission or distribution line upon any brush-covered land or grass-covered land shall maintain a clearance of the respective distances in all directions between all vegetation and all conductors at: 4 feet for any line operating at 2,400 or more volts, but less than 72,000 volts (between 2.4 kV and 72 kV); and 10 feet for any line operating at 110,000 or more volts (110 kV and greater). The applicable Project 34.5-kV and 230-kV transmission line poles will be maintained in accordance with this code section.

5.4.1.2.6 CPUC General Order (GO) 95, Rules for Overhead Electric Line Construction. GO 95, adopted in 1941 and updated most recently in 2006, is the key standard governing the design, construction, operation, and maintenance of overhead electric lines in California. GO 95 encompasses safety standards for overhead electric lines, including minimum distance for conductor spacing, minimum conductor ground clearance, standards for calculating maximum sag, electric line inspection requirements, and vegetation clearance requirements.

The Project transmission line is designed in accordance with GO 95 standards. The issues, inspection requirements (governed by Rule 31.2) and vegetation clearance requirements (governed by Rule 35), which directly pertain to fire safety for the proposed Project, are summarized below.

***GO Rule 31.2, Inspection of Lines*.** Rule 31.2 requires that all classes of overhead lines be inspected frequently and thoroughly for the purpose of ensuring that they are in good condition, and that lines temporarily out of service be inspected and maintained in such condition as not to create a hazard. The 34.5-kV and 230-kV transmission lines will be inspected and maintained in accordance to Rule 31.2.

***GO 95 Rule 35, Tree Trimming*.** Rule 35 defines minimum vegetation clearances around power lines, and requires 10-foot radial clearances for any conductor of a line operating at 110,000 volts or more, but less than 300,000 volts. These requirements apply to the proposed 230-kV transmission line. The 230-kV transmission line will be maintained in accordance with Rule 35.

5.4.1.3 Local

5.4.1.3.1 Los Angeles County Fire Code, Title 32. The LACFD provides fire protection service to the Project site and portions of the proposed off-site 230-kV transmission line route. The LACFD has established the Los Angeles County Fire Code (Title 32) and Building and Safety Code to provide minimum standards for construction. These standards ensure that all buildings and structures are safe for occupancy and use. Title 32 of the Los Angeles County Code contains Sections 317.1.1 and 317.1.2 pertaining to electrical transmission lines, which are identical to PRC Sections 4292 and 4293, respectively. The Project will be designed and maintained in accordance with Title 32.

5.4.1.3.2 Los Angeles County Fire Department Regulation 27, Requirements for Building Construction and Land Development Use Within or Adjacent to High Voltage Transmission Lines. Regulation 27 outlines procedures related to structures and uses underneath and adjacent to high voltage transmission lines. Regulation 27 applies to power lines operating at or above 66 kV, and pertains to the proposed 230-kV transmission line. The Project will comply with Regulation 27.

5.4.1.3.3 Los Angeles County Fire Department Regulation 5, Limited Access Devices and Systems. Regulation 5 outlines policies and procedures related to the location, use, and required LACFD approvals and emergency access provisions for limited access devices at fire access gates associated with the proposed Project facility. The Project will comply with Regulation 5.

5.4.1.3.4 Kern County Fire Code, Chapter 17.32. The Kern County Fire Department (KCFD) provides service to the portion of the proposed transmission line route in Kern County. The Kern County Fire Code (Chapter 17.32) regulates and safeguards life, property and public from the hazards of fire, hazardous materials release, and explosion arising from the storage, use and handling of dangerous and hazardous materials, substances and devices, conditions hazardous to life or property in the occupancy and use of buildings and premises, the operation, installation, construction, location, safeguarding and maintenance of attendant equipment, and the installation and maintenance of adequate means of egress.

5.4.2 Environmental Setting

The AV Solar Ranch One Project site is located in the Antelope Valley, in northern unincorporated Los Angeles County. From the Project site, an off-site transmission line route runs north through unincorporated Los Angeles County and crosses into unincorporated Kern County, where it would interconnect to the electrical grid at the planned SCE Whirlwind Substation. Approximately 1.5 and 2 miles of the off-site transmission line route are located in Los Angeles County and in Kern County, respectively. The approximately 2,100-acre Project site and the southern portion of the off-site transmission line route are served by fire protection services from the LACFD. The northern 2 miles of the off-site transmission line are served by the KCFD.

5.4.2.1 AV Solar Ranch One Facility

The Project site is located in the Antelope Valley at the southwestern end of the Mojave Desert that is characterized by extreme temperatures and common high winds. The Project site is not located within a recommended Local Agency Very High or High Fire Hazard Severity Zone (CAL FIRE 2007b). The LACFD, Fire Prevention Division has identified the Project site and the general site vicinity as being in Fire Zone 3 (Pantana 2009). According to the Los Angeles County Ordinance Chapter 26.150, all of the unincorporated territory within the County is established as Fire Zone 3 by default, except where established otherwise. Based on the experience of the LACFD, extreme temperatures and high winds pose wildfire hazard conditions in the Project area (LACFD 2009b).

The Project site and the portion of the off-site transmission line in Los Angeles County are located within the LACFD service area for Battalion 11. Battalion 11 encompasses 11 fire stations and is headquartered in Lancaster. Units from the closest available fire station typically provide emergency response. Ten stations are located within 20 miles of the Project site (Stations 78, 112, 157, 140, 130, 134, 33, 129, 117, 135, in order of increasing distance) that could provide rapid response to a fire service call. The County bases the adequacy of fire services on performance measures, where the target response time for all 9-1-1 calls in the Project area (i.e., rural areas) is less than 12 minutes (County of Los Angeles 2009). LACFD

is currently meeting this response time, and is expected to meet this target response time during FY 2009-2010 (County of Los Angeles 2009). In the event of a significant incident, LACFD may dispatch units from any station in the entire department system.

Stations 78, which is approximately 6 miles south of the of the Project site, is the jurisdictional station (i.e., first responder) for the Project site. Station 78 employs three (3) 24-hour on-duty daily staff, and can be augmented with Call Fire Fighters (CFF) as needed. Stations 112, 140, and 157 are CFF stations, which are common in rural and remote areas of Los Angeles County. Call Fire Fighters are employed by the department to serve at rural stations that do not require full-time staffing, and operate as first responders under the supervision and direction of Station 33 (Battalion 11 Headquarters).

In the event of a significant fire incident, fire responders are dispatched from their respective jurisdictions. In the event that resources are unavailable from the jurisdictional station, other Los Angeles County battalions and jurisdictions may be called upon as needed to respond to emergencies. Additionally, in accordance with the California Disaster and Civil Defense Master Mutual Aid Agreement, in the event of a catastrophic incident, fire protection services from departments outside of Los Angeles County, including the KCFD would also respond as needed. Section 5.12, Fire Protection Services, provides details regarding fire station names, locations, and service near the Project site.

5.4.2.2 Off-site Transmission Line Route

The proposed off-site 230-kV transmission line is approximately 3.5 miles long, and would run north within or adjacent to the public road right-of-way of 170th Street West to SCE's planned Whirlwind Substation. Approximately 1.5 miles of the off-site portion of the transmission line are located in Los Angeles County, and 2 miles in Kern County.

The off-site transmission line route located in Los Angeles County is in Fire Zone 3. Unless otherwise designated in Los Angeles County Code, all of the unincorporated territory within the County are established as and placed in Fire Zone 3. Within Kern County, the transmission line route is not located within a recommended Local Agency Very High or High Fire Hazard Severity Zone (CAL FIRE 2007a).

The LACFD and the KCFD would provide fire protection services for the off-site transmission line. In the event of an emergency, the first fire station dispatched would be from the County within which the emergency originates. If further fire protection services are needed, additional fire stations would respond as required, and assistance from outside the area could also be obtained through the California Disaster and Civil Defense Master Mutual Aid Agreement. Section 5.12, Fire Protection Services, details fire station names, locations, and service near the transmission line route.

LACFD Station 78 would also be the first-responder to the portion of the off-site transmission line located in Los Angeles County. KCFD Station 15 in Rosamond is the nearest station to the transmission line in Kern County. The Rosamond station is located at 3219 35th West Street in Rosamond, approximately 13.5 miles northeast of the transmission line. The Rosamond station is staffed with three firefighters and one engine and their response time to the off-site transmission line areas is approximately 15 to 20 minutes (Epps 2009).

The second nearest station is KCFD Station 14 in Mojave, which is approximately 20 miles northeast of the proposed transmission line route. In the event of a significant fire incident, fire responders from other Kern County stations and jurisdictions may be called upon to respond to emergencies within the Project service area.

5.4.3 Project Impacts

5.4.3.1 Methodology and Significance Criteria

According to Los Angeles County significance criteria, the proposed Project would result in a significant impact if:

- It is located in a Very High Hazard Severity Zone (Fire Zone 4).
- It is in a high fire hazard area and served by inadequate access due to lengths, width, surface materials, turnarounds, or grade.
- It has more than 75 dwelling units on a single access in a high fire hazard area.
- It is located in an area having or subject to inadequate water and pressure to meet fire flow standards.
- It is located in close proximity to potential dangerous fire hazard conditions/uses (such as refineries, flammables, explosives manufacturing).
- The proposed use constitutes a potentially dangerous fire hazard.

5.4.3.2 Impact Analysis

5.4.3.2.1 Criteria 1: Is the Project located in a Very High Hazard Severity Zone (Fire Zone 4)?

Facility Site. The proposed Project would have a potentially significant impact if it is located in a Very High Hazard Severity Zone (Fire Zone 4). According to the LACFD, Fire Prevention Division, the proposed Project site is not located in Fire Zone 4 (Very High Fire Hazard Severity Zone). Additionally, the proposed Project site is not located within a state identified Very High, High, or Moderate Fire Hazard Severity Zone (CAL FIRE 2007a). The

Project site is located within the County designated Fire Zone 3, which is assigned to all unincorporated territories within the County unless established otherwise in the County code. Project impacts related to Fire Zone 4 and Very High Hazard Severity Zones are not applicable. Development of the Project is required to comply with all applicable code and ordinance requirements for construction, access, and water supply and pressure, and would be subject to LACFD approvals. As a result, impacts would be considered less than significant.

Off-site Transmission Line. The proposed Project would have a potentially significant impact if it is located in a Very High Hazard Severity Zone (Fire Zone 4). The off-site transmission line route through Los Angeles County is in Fire Zone 3. The off-site transmission line route through Kern County is not located within a recommended Local Agency Very High or High Fire Hazard Severity Zone (CAL FIRE 2007b). Project transmission line impacts related to Fire Zone 4 and Very High Hazard Severity Zones are not applicable. The transmission line design and construction would be expected to comply with applicable fire code and design standards, and would be subject to LACFD approvals. As a result, impacts would be less than significant.

5.4.3.2.2 Criteria 2: Is the Project site in a high fire hazard area and served by inadequate access due to lengths, widths, surface materials, turnarounds, or grade?

Construction.

Facility Site. The proposed Project would have a significant impact if it is in a high fire hazard area and served by inadequate access due to lengths, width, surface materials, turnarounds, or grade.

Primary access to the site is via SR-138 to 170th Street West (2-lane, paved, with shoulders), and secondary access is via SR-138 to 160th Street West (unpaved road). The Project is adequately served by the existing roadway systems, where the regional freeways serving the site consist of I-5 freeway and SR-14, and the local roadways serving the site consist of SR-138, 170th Street West, and 160th Street West. The Project would not require installation of permanent left-turns lanes along the primary roadways, and is not expected to require substantial roadway modifications (i.e., creation of new roads or turns, expansion of road widths, etc.).

During construction, the LACFD and KCFD would require that adequate vehicular access be provided and maintained. As described in Section 5.11, Mitigation Measure 5.11-1 requires preparation of Traffic Control Plans that would include: 1) location and usage of appropriate advance warning signs with adequate distances between signs based on local speed limits; 2) proper merging taper and/or shifting lane schematics; and 3) adequate work area and buffer

zone designation as well as proper location and conduct of flagmen. Additionally, Mitigation Measure 5.11-1 requires that the County of Los Angeles Fire Department Fire Stations 78, 112, and 140 are notified a minimum of 3 days in advance of any street closures that may affect fire/paramedic responses in the area. In the event that the Project would require road closures, alternate route details (detour plans) and the schedule of closures would be submitted to the LACFD prior to construction, as required by Mitigation Measure 5.11-1. Based on the existing available access to the site and the Project's proposed measures to manage traffic during construction (Mitigation Measure 5.11-1), the Project has adequate fire/emergency response access. Therefore, impacts would be less than significant.

Off-site Transmission Line. The proposed Project would have a significant impact if it is in a high fire hazard area and served by inadequate access due to lengths, width, surface materials, turnarounds, or grade. The proposed transmission line would be located within or adjacent to the 170th Street West ROW in Los Angeles and Kern counties. Access to the transmission line work areas would be off 170th Street West.

Construction of the off-site transmission line may require temporary lane closures along 170th Street West during roadway crossings and in potential cases where there is insufficient ROW and private property permissions. As described in Section 5.11, Mitigation Measure 5.11-1 would require implementation of a Traffic Control Plan, which would be coordinated with Los Angeles and Kern counties, and would provide the safety measures (i.e., placement of advance warning signs, proper merging taper and/or shifting lane schematics, use of flagmen, etc.) for worksite area traffic control. Based on the existing access to the work area, and the implementation of Mitigation Measure 5.11-1 to provide for safe traffic control in the event of lane closures, the proposed off-site transmission line would be expected to have adequate fire/emergency response access. Therefore, impacts would be less than significant.

Operation.

Facility Site. As discussed previously, the Project is adequately served by the existing roadway systems. Details of the primary access at the Project site are provided on Figure 4.4-5A in the Project Description. As shown, the main facility entrance off 170th Street West would be paved, approximately 30 feet wide, and provides room for vehicles to turn off 170th Street West to avoid obstructing traffic.

The Project internal roadway system will include perimeter roads surrounding the facility, as well as a network of roads between solar blocks (refer to Figure 4.4-1A). The permanent internal access roads would be compacted earthen roads, and would be primarily 30 feet in width, as well as 20-feet wide in selected locations. In accordance with LACFD recommendation (Bravo 2009), the turning points of the internal roadway system have been designed to provide at least a 32-foot turning radius. Roadway specifications will be finalized

during coordination with the County (i.e., County Fire Department, Transportation Department, etc.). In addition, the Project will comply with access requirements of the LACFD. These requirements are summarized in Section 5.4.5. Based the above considerations, and on Project design and conformance with LACFD requirements, impacts would be less than significant.

Off-site Transmission Line. Operational phase activities for the off-site transmission line would consist primarily of periodic windshield surveys, and would not affect emergency access along 170th Street West or pertinent cross streets. Should the transmission line require maintenance or repair involving equipment and use of the public road ROW, traffic control measures (in accordance with Mitigation Measure 5.11-1 in Section 5.11.5, Mitigation Measures) would be utilized to ensure that emergency access and traffic flow were maintained as well as public and worker safety. In addition, maintenance activities would be performed in accordance with County encroachment permit conditions, as applicable. Potential impacts would be less than significant.

5.4.3.2.3 Criteria 3: Does the Project have more than 75 dwellings on a single access in a high fire hazard area?

Construction.

Facility Site. The proposed Project would have a significant impact if it has more than 75 dwelling units on a single access in a high fire hazard area. The facility site does not involve residential development.

The site's primary access is off 170th Street West, and secondary access would be off 160th Street West. A few residences (less than 10) are located along 170th Street West; the nearest of which is approximately 0.5 mile north of the Project facility site. No residences have been identified along 160th Street West in the vicinity of the site's secondary access road. The proposed Project would not affect access to the scattered residences west of the Project site.

As described in Section 5.11, Traffic and Access, the traffic impact study has determined that the proposed Project will not significantly impact Project area intersections or roadway segments during construction (all intersections and roadway segments are anticipated to operate at acceptable levels of service of LOS C or better). Since the site vicinity roads and intersections are not expected to be significantly impacted, it is expected they would be able to adequately accommodate emergency access for the local residences described above. The potential for impacts is anticipated to be less than the equivalent of 75 dwelling units, and no significant impacts to access for nearby residences are expected.

Off-site Transmission Line. The proposed transmission line route does not involve residential development. The transmission line route is located in a rural area with few

residential dwellings (i.e., approximately 5 residences along the route). No proposed high density residential projects have been identified along the transmission line route. Construction of the transmission line would contribute temporary increases to traffic and short-term lane closures along 170th Street West. However, the increased traffic would not be substantial, given the relatively few number of construction personnel and trucks required for transmission line construction (peak of 21 workers and up to 2 trucks per day for 4 months). Short-term lane closures during construction along 170th Street West would be performed in accordance with a Traffic Control Plan (Mitigation Measure 5.11-1). As a result, construction of the transmission line would have less than significant effects on this criterion.

Operation. As described above, the Project does not involve residential development. Few residences (less than 10) are located along the site's primary access road, and none have been identified along the secondary access road. During operations of both the facility and the off-site transmission line, the Project is expected to require a total number of 16 full-time employees. The number of these employees using the facility site access in conjunction with the residences that may potentially use 170th Street West and 160th Street West in the Project vicinity is expected to be much less compared to the effects of 75 dwelling units. Therefore, the Project is expected to result in less than significant impacts.

5.4.3.2.4 Criteria 4: Is the Project site located in an area having inadequate water and pressure to meet fire flow standards?

Facility Site. The Project site is located within the Antelope Valley Groundwater Basin area. The Project proposes to use groundwater from existing groundwater supply wells that have served previous on-site agricultural uses, during construction and operation of both the facility site and off-site transmission line.

The Project would maintain an estimated 100,000 gallon water tank near the O&M Building to provide fire protection water (90,000 gallons, as required by the LACFD) and service water (10,000 gallons) needs. Additionally, a second 10,000-gallon firewater tank would be installed and maintained near the southern site entrance (south of SR-138) along 170th Street West as shown on Figure 4.4-1A. As discussed in Section 5.14, Utility Services, the Project is not designed to require a substantial water supply and the Project wells and on-site firewater storage tanks would be expected to be sufficient to meet fire protection water needs. Adequate firewater pressure would be delivered using an electric pump (a diesel-fueled backup pump may be installed by the Applicant so that firewater is available during power outages). As discussed in Section 5.14, Utility Services, there is sufficient water to supply the Project needs, including 100,000 gallons of firewater for the on-site firewater storage tanks. In the event that groundwater becomes unavailable, a backup water supply (e.g., via trucking) would be utilized to provide a reliable firewater supply. As a result, the

Project would not be anticipated to cause significant impacts resulting from inadequate firewater supply or pressure.

Off-site Transmission Line. The proposed off-site transmission line route is located in Los Angeles and Kern counties. The proposed transmission structures are non-flammable, tubular steel poles. Firewater supplied by on-site groundwater wells (or backup supply) and the 100,000-gallon water tank adjacent to the O&M building (90,000 gallons for fire water) and a separate 10,000-gallon fire water tank south of SR-138 would be available for responding fire truck use, if necessary. As a result, the construction and operation of the off-site transmission line would not be expected to cause significant impacts resulting from inadequate firewater supply or pressure.

5.4.3.2.5 Criteria 5: Is the Project located in close proximity to potential dangerous fire hazard conditions/uses (such as refineries, flammables, explosives manufacturing)?

The proposed Project would have a significant impact if it is located in close proximity to potential dangerous fire hazard conditions/uses (such as refineries, flammables, explosives manufacturing). The facility site and off-site transmission line areas are generally surrounded by existing agricultural and open space uses. No known potential dangerous fire hazard uses such as refineries, flammable, and/or explosives manufacturing have been identified in close proximity to the proposed Project site. Therefore, impacts would be less than significant.

5.4.3.2.6 Criteria 6: Does the proposed use constitute a potentially dangerous fire hazard?

Construction. The proposed Project would have a significant impact if the proposed used constitutes a potentially dangerous fire hazard. The proposed Project involves construction of solar PV power generation facilities. Construction of the facility and off-site transmission line would require use of construction equipment, including vehicles, generators, and hazardous materials (i.e., fuels, lubricating oils, and welding materials), which pose potentially dangerous fire hazards. The proposed Project also involves the construction of a transmission line, part of which is located within the facility site.

Potential Impact 5.4-1: Fire Hazards during Construction.

The temporary use of construction and maintenance equipment and associated flammable fuels would be managed in accordance with applicable County, state, and federal requirements. As described in Potential Impact 5.15-1 in Section 5.15.3.2.1, a hazardous material and hazardous waste management program would be implemented for both construction and operation phases that would outline proper hazardous materials use, storage, and disposal requirements.

The risk of fire danger from the proposed Project would be primarily related to smoking, refueling and operating vehicles and other equipment off roadways. Welding activities may also potentially result in the combustion of brush and vegetation. Both on-site and off-site transmission lines may pose a fire hazard when a conducting object comes in close proximity to a line or when a live-phase conductor falls to the ground. Implementation of Mitigation Measure 5.4-1 (which requires the development of a Fire Protection and Prevention Plan), as described below in Section 5.4.5, Mitigation Measures, would reduce the potential impacts associated with fire hazards to less than significant.

Operation. The proposed Project involves operation of solar PV power generation facilities. During operation, power would be generated through passive absorption of sunlight through the PV panels. The panels would be mounted on tracker or fixed-tilt units, which would position the panels for sunlight absorption throughout the day. The Project would require associated electrical equipment, including transformers and inverters, and would also require an on-site substation. An emergency diesel backup generator may be installed to operate the firewater pumps and critical equipment in the event of a power outage. The proposed Project also involves the operation of a transmission line, part of which is located within the facility site.

Potential Impact 5.4-2: Facility Fire Hazards during Operation.

The identified equipment involves use of oils (e.g., dielectric or mineral oils and lubricants) and fuels and, therefore, poses potential fire hazards. Fire hazards would be minimized through the proposed fire protection system and implementation of proper maintenance of the facility described below.

Fire protection measures would include sprinkler systems in the Operations and Maintenance building. . An FM200 fire suppression system, or equivalent, would be used in the plant control room and electrical/control rooms at the O&M Building. If electrical inverters and medium-voltage transformers are housed together in larger, combined walk-in enclosures (i.e., versus individual cabinet-type enclosures), automatic fire suppression consisting of a FM200 system would be incorporated into each combined enclosure as required by the LACFD. FM200 is a gaseous (halocarbon), clean fire suppression agent that is a non-ozone depleting replacement for Halon 1301. If the electrical inverters and medium-voltage transformers (outdoor rated) are located in individual cabinet-type enclosures they would have portable carbon dioxide (CO_2) fire extinguishers mounted outside on their respective pads throughout the solar array Additionally, fire protection for the solar array would be provided by vegetation management programs in accordance with the Vegetation Management and Fire Control Measures Plan provided in Appendix K of this EIR. During facility operations, vegetation within the solar field would be controlled to minimize the risk of wildfire. Vegetation would be cut in April of each year to a height of 6 inches or less

above the ground surface, and would be maintained at approximately this height via supplemental cutting, as necessary, through January. Vegetation such as grasses and wildflowers would be allowed to grow to a height of no more than 18 inches from February 1 through mid-April to ensure that a seed supply is maintained to perpetuate these annual vegetation types. Vegetation would be cut again each April prior to the start of fire season on May 1.

Permanent fire breaks would also be provided as shown on Figure 4.4-1D and described in the Vegetation Management and Fire Control Measures Plan (Appendix K of this EIR). Fire breaks include 100-foot perimeter fire breaks around the facility from the edge of the property line, road ROW, or fence line depending on the location. Where the property boundary is adjacent to sensitive resource areas such as Drainage C or SEA #60 (e.g., along the southern boundary of the site north of Drainage C, and along the northern boundary south of SEA #60), as well as along both sides of SR-138, the fire break would be maintained inside the Project perimeter fence line, including areas under the solar panel arrays, as applicable. Two hundred-foot-wide fire breaks generally centered on permanent access roads would also be maintained within the facility, approximately every ½ mile (refer to Figure 4.4-1D). All fire breaks would be regularly maintained to ensure that vegetation does not become established and that the fire breaks are kept free of vegetation.

The PV panels within the solar array have been tested in accordance with Underwriters Laboratories (UL): 1) UL1703 Section 31.1 (spread of flame) and 31.2 (burning brand), as well as 2) UL790 (Standard Test Methods for Fire Tests of Roof Coverings). In accordance with these tests, the panels are rated for residential rooftop applications and have a Class C fire resistance rating (able to withstand light exposure to fire from outside sources).

The Project inverters and transformers (as described in Section 4.4.1.3) may be contained in metal or concrete structures, which would be designed to meet National Electric Manufacturers Association (NEMA) 1 or NEMA 3R IP44 standards for electrical enclosures. All electrical equipment (including inverters) not located within a larger enclosure will be designed specifically for outdoor installation. Outdoor electrical equipment would be contained within individual NEMA 3R metal clad enclosures. Additionally, the electrical equipment (whether contained within an enclosure or outdoor-rated) are subject to the product safety standard requirements of the UL and Conformance European (CE) certifications, which include assurance that the equipment would be safe to touch by humans and wildlife, and would not pose electrical shock or fire hazards.

Overall maintenance of the facility would include proper storage of flammable materials, upkeep of operating equipment, and management of vegetative growth. In addition the Project will comply with additional requirements of the LACFD. These requirements are summarized in Section 5.4.5. Implementation of Mitigation Measure 5.4-1 (which requires

the development of a Fire Protection and Prevention Plan), as described below in Section 5.4.5, Mitigation Measures would reduce the potential impacts associated with fire hazards to less than significant.

The Project's firewater needs will be supplied by maintaining a minimum required water level in the Project process water storage tank (see Section 4.4.2.4). In this case, the water tank will be sized appropriately to accommodate process water and firewater needs. Firewater will be delivered by an electric pump, and a diesel-fueled backup pump may be installed so that firewater is available during power outages. Fire protection pump flow rates will be based on applicable requirements. All fire protection system pumps will be designed to be shut off manually.

Potential Impact 5.4-3: Transmission Line Fire Hazards during Operation.

The on-site and off-site transmission lines may pose a fire hazard, when a conducting object comes in close proximity of a line, or in the event that a live-phase conductor falls to the ground. Transmission line clearances for vegetation will be implemented in accordance with Los Angeles County Title 32 Fire Code, Section 317 (Clearance of Brush and Vegetative Growth), PRC Section 4292 (Power Line Hazard Reduction), PRC Section 4293 (Power Line Clearance Required), and Public Utilities Commission General Order 95 (Rules for Overhead Electric Line Construction). Additionally, during transmission line maintenance activities (i.e., transmission line inspection, vegetation clearance, etc.) operating vehicles and equipment may potentially spark, and result in fire danger. Implementation of Mitigation Measure 5.4-1 (Fire Protection and Prevention Plan), as described below in Section 5.4.5, Mitigation Measures, would reduce the potential impacts associated with fire hazards to less than significant.

Based on implementation of the above safety and mitigation measures, it is expected that potential impacts associated with fire hazards would be reduced to a less than significant level.

5.4.4 Cumulative Impacts

There are several other proposed projects within 5 miles of the Project site (refer to Section 4.6) that have the potential to result in cumulative impacts related to fire hazards. Through the implementation of Mitigation Measure 5.4-1 (Fire Protection and Prevention Plan) as well as compliance with LACFD requirements, Project-specific impacts affecting risks of fire would be less than significant. It is assumed that other potential projects would be required to implement similar fire hazard reduction measures. Therefore, no significant cumulative effects related to fire hazards would be expected to occur.

5.4.5 Mitigation Measures

The following fire hazard reduction measures will be implemented in accordance with LACFD requirements for the facility site, and regulations for transmission line fire safety. Although implementation of these measures would lessen potential Project impacts, they are not considered to be mitigation measures since they are requirements of the LACFD.

- The Project is required to prepare and submit a Vegetation Management and Fire Control Measures Plan. The Plan is included as Appendix K to this EIR.
- Water requirements will be in accordance with National Fire Protection Association (NFPA) 1142 prior to issuance of a building permit.
- The Project will provide paved fire apparatus access with a minimum width of 26 feet clear to sky. The access will extend to within 150 feet of all exterior portions of all buildings.
- "All fire access gates will comply with LACFD "Regulation 5 – Limited Access Devices and Systems."
- Access roads shall be maintained with a minimum of 10 feet of brush clearance on each side. Fire access roads shall have an unobstructed vertical clearance clear-to-sky with the exception of protected tree species.
- Turning radii within the facility site shall not be less than 32 feet.
- The Project will comply with LACFD "Regulation 27 – Requirements for Building Construction and Land Use Within or Adjacent to High Voltage Transmission Lines."
- The Project will comply with CPUC GO 95, PRC 4292, and PRC 4293 for transmission line fire safety requirements.

To further minimize potential fire hazard impacts associated with the proposed Project, implementation of the following mitigation measure shall be required.

Mitigation Measure 5.4-1: Fire Protection and Prevention Plan. The proposed Project shall develop and submit a Fire Protection and Prevention Plan to the LACFD for review and approval prior to issuance of a Grading Permit. The Plan shall address construction and operation activities for the Project, and establish standards and practices that will minimize the risk of fire danger, and in the case of fire, provide for immediate suppression and notification.

The Fire Protection and Prevention Plan shall address spark arresters, smoking and fire rules, storage and parking areas, use of gasoline-powered tools, road closures, use of a fire guard, and fire suppression equipment and training requirements. In addition, all vehicle parking

areas, storage areas, stationary engine sites and welding areas shall be cleared of all vegetation, and flammable materials. All areas used for dispensing or storage of gasoline, diesel fuel or other oil products shall be cleared of vegetation and other flammable materials. These areas shall be posted with signs identifying they are "No Smoking" areas. An interim fire protection system shall be in place during construction until the permanent system is completed. The Plan shall also address vegetation clearance and maintenance requirements applicable to the transmission pole structures during operation.

Special attention shall be paid to operations involving open flames, such as welding, and use of flammable materials. Personnel involved in such operations shall have appropriate training. A fire watch utilizing appropriately classed extinguishers or other equipment shall be maintained during hot work operations. Site personnel shall not be expected to fight fires past the incident stage. The local responding fire officials shall be given information on the site hazards and the location of these hazards, and the information shall be included in the emergency response planning.

Materials brought on-site shall conform to contract requirements, insofar as flame resistance or fireproof characteristics are concerned. Specific materials in this category include fuels, paints, solvents, plastic materials, lumber, paper, boxes, and crating materials. Specific attention shall be given to storage of compressed gas, fuels, solvents, and paint. Electrical wiring and equipment located in inside storage rooms used for Class I liquids shall be stored in accordance with applicable regulations. Outside storage areas shall be graded to divert possible spills away from buildings and shall be kept clear of vegetation and other combustible materials.

On-site fire prevention during construction shall consist of portable and fixed firefighting equipment. Portable firefighting equipment shall consist of fire extinguishers and small hose lines in conformance with Cal-OSHA and the National Fire Protection Association (NFPA) for the potential types of fire from construction activities. Periodic fire prevention inspections shall be conducted by the contractor's safety representative.

Fire extinguishers shall be inspected routinely and replaced immediately if defective or in need of recharge. All firefighting equipment shall be conspicuously located and marked with unobstructed access. A water supply of sufficient volume, duration, or pressure to operate the required firefighting equipment shall be provided on-site. Authorized storage areas and containers for flammable materials shall be used with adequate fire control services.

The Operations Fire Protection and Prevention Program shall address the following:

- Names and/or job titles responsible for maintaining equipment and accumulation of flammable or combustible material control

- Procedures in the event of fire
- Fire alarm and protection equipment
- System and equipment maintenance
- Monthly inspections
- Annual inspections
- Firefighting demonstrations
- Housekeeping practices
- Training

5.4.6 Level of Significance after Mitigation

Implementation of LACFD requirements and Mitigation Measure 5.4-1 would reduce any potential fire hazards impacts associated with the Project to a less than significant level.

5.4.7 References

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2009b. Meeting with LACFD, NextLight, and URS at LACFD offices located in Commerce, CA. April 16.

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5.3 FLOOD HAZARDS

This section describes the regulatory framework, environmental setting, impact significance criteria, and the potential impacts of flood hazards associated with the proposed Project. The potential impacts are described, assessed, and mitigation measures are proposed to reduce impacts. This section summarizes and is based primarily upon the Drainage Concept Report prepared by Psomas (Psomas 2009). For reference purposes, this study is included in Appendix C of this EIR.

5.3.1 Regulatory Setting

Development in the Project region that discharges stormwater runoff into and/or encroaches upon natural drainages, wetlands, and/or floodplains is potentially subject to the requirements of the U.S. Army Corps of Engineers (USACE), the Federal Emergency Management Agency (FEMA), the State Water Resources Control Board (SWRCB), and the Lahontan Region, Regional Water Quality Control Board (RWQCB) pursuant to the Clean Water Act (CWA); and the Water Resources Division of the Los Angeles County Department of Public Works (LACDPW).

The proposed Project would not impact any "Waters of the U.S.," thus no USACE requirements are applicable to the Project. Refer to Section 5.5 (Water Quality) of this EIR for regulations that relate specifically to water quality.

5.3.1.1 Federal

5.3.1.1.1 National Flood Insurance Program. FEMA administers the National Flood Insurance Program (NFIP). FEMA has completed Flood Insurance Rate Maps that identify Special Flood Hazard Areas. To comply with the NFIP, communities must adopt a floodplain management ordinance addressing construction and habitation in flood zones. In California, the Department of Water Resources provides and encourages communities to adopt the California Model Floodplain Management Ordinance.

5.3.1.2 State

5.3.1.2.1 Standardized Urban Stormwater Mitigation Plan. A municipal stormwater National Pollutant Discharge Elimination System (NPDES) permit issued to Los Angeles County and 85 cities by the Los Angeles County Regional Water Quality Control Board (RWQCB) on July 15, 1996, required the development and implementation of a program addressing stormwater pollution issues in development planning for private projects. On December 13, 2001, the RWQCB issued a new NPDES permit (Los Angeles County MS4 Permit), updating these program requirements.

The Standardized Urban Stormwater Mitigation Plan (SUSMP) was developed as part of the municipal stormwater program to address stormwater pollution as required by the NPDES permit. The SUSMP contains a minimum of the required Best Management Practices (BMPs) that must be used for a designated project.

5.3.1.3 Local

The following Los Angeles County flood hazard-related standards and policies are potentially applicable to the proposed Project site and the portion of the proposed off-site transmission line in Los Angeles County. The Kern County policies are only potentially applicable to the northern 2-mile portion of the proposed off-site transmission line in Kern County.

5.3.1.3.1 Los Angeles County General Plan.

Los Angeles County General Plan, Safety Policy 12. Promote the use of flood plain management measures in high-risk inundation areas, and require expansion of existing and proposed new developments to be flood-proofed and secured to minimize future flood losses.

Antelope Valley Areawide General Plan, Policy 114. As an interim policy, pending construction of regional drainage facilities, require installation of appropriate systems and facilities to retain the increase in storm runoff due to development on the project site or equivalent mitigation measures.

Antelope Valley Areawide General Plan, Policy 152. Prevent public exposure to flood hazards by prohibiting residential, commercial, and industrial development in recognized flood inundation areas unless proper mitigation is instituted.

County Code Title 12 Chapter 12.84, Low Impact Development Standards. The purpose of the low impact development (LID) standards is to provide for sustainable growth while preserving the characteristics of the County's watersheds, drainage paths, water supplies, and natural resources. Chapter 12.84 guides the use of structural devices, engineered systems, vegetated natural designs, and education in order to distribute stormwater and urban runoff across a development site.

5.3.1.3.2 Los Angeles County Department of Public Works. The LACDPW is responsible for the design, construction, operation, maintenance, and repair of roads, bridges, airports, sewers, water supply, flood control, water quality, and water conservation facilities, and for the design and construction of capital projects. Additional responsibilities include regulatory and ministerial programs for the County of Los Angeles, Los Angeles County Water Resources Division, other special districts, and contract cities that request services.

The LACDPW has developed specific design, operation, and maintenance criteria for drainage facilities. The Project Preparation Instruction Manual for Drainage Facilities (LACDPW 1988) states that the criteria for drainage facility design shall be contained in the following LACDPW Manuals:

- Project Preparation Instruction Manual (February 1988)
- Hydraulic Design Manual (March 1982)
- Structural Design Manual (April 1982)
- Debris Dams and Basins Design Manual (January 1983)

The Project Preparation Instruction Manual states that deviations from LACDPW design criteria as provided in the above manuals shall be submitted to LACDPW for approval prior to use.

The LACDPW also developed requirements for hydrologic design of flood control and stormwater management facilities, listed below:

- Antelope Valley Final Report on the Comprehensive Plan of Flood Control and Water Conservation
- Sedimentation Manual, 2nd Edition (March 2006)
- County of Los Angeles Low Impact Development Standards Manual (January 2009)
- Hydrology Manual (January 2006)

Capital Flood. A LACDPW memorandum, dated March 31, 1986, has established the Los Angeles County policy on levels of flood protection. This policy describes which degree of flooding and, therefore, which design storms to use for different conditions and structures.

The design flood discharge is the maximum flood that would occur under average physiographic conditions of the watershed due to a design storm of a given frequency. The design storm is defined as the storm which gives rise to the design flood for the particular catchment (watershed) area and is selected based upon the "basin lag" time and the desired return period of flood for which the structures are designed.

In September 2003, LACDPW revised the hydrologic method that accounts for fire effects on runoff computations. The revised capital flood is based on a theoretical 50-year frequency storm event (an event with the probability of 1/50 of being equaled or exceeded in any year) occurring right after the watershed has been burned with the resulting flow rate being increased again by a bulking factor (increase in flow due to increased sediment and debris),

thereby yielding a peak flow rate that is much greater than a 50-year storm over an unburned-unbulked drainage basin.

The standard set by the Federal Flood Insurance Agency (FIA) for flood insurance protection is the 100-year flood, an elevation level based on historic runoff records; however, the standard makes no allowance for future urbanization or debris. In flood hazard areas, the federal standard requires the finished floor elevations of proposed buildings to be at least 1 foot above the surface water level of the 100-year flood. The capital flood takes into account the effect of urbanization, burned and "bulked" flows, and typically meets or exceeds FIA standards for the 100-year flood (LACDPW 2006).

The capital flood also applies to all areas mapped as floodways and all culverts under major and secondary highways and to all facilities, including open channels, closed conduits, bridges, and dams and debris basins not under California's jurisdiction, that are constructed in or intercept floodwaters from natural watercourses. A natural watercourse is a path in which water flows due to natural topographic features. For definition purposes, a natural watercourse drains a watershed greater than 100 acres and also meets one or more of the following conditions during a capital flood (LACDPW 2006):

- Flow velocity of greater than 5 feet per second (fps).
- Flow depth greater than 1.5 feet.
- Water surface elevations within 1 foot below the base of adjacent dwellings, if that elevation is the result of the construction of drainage facilities with less than a capital flood capacity. This applies only to those facilities that are intended to replace the natural watercourse.

***Water Resources Division*.** The Water Resources Division within LACDPW is responsible for collecting and analyzing hydrologic data to support the design, operation, and maintenance of flood control facilities within Los Angeles County. Among other duties, the Water Resources Division performs hydrology and sedimentation studies; collects stream flow, precipitation, and evaporation data; forecasts rainfall runoff; and analyzes flood flows. The data collected by the Water Resources Division is used in conjunction with design standards developed by LACDPW to ensure that flood control facilities are adequately sized, maintained, and operated. The Water Resources Division operates and maintains County flood control facilities, including open flood control channels, underground storm drains, catch basins, debris retaining structures, and concrete streambed stabilization structures.

The Water Resources Division uses site-specific data to prepare maps of watersheds burned by brush fires, potential mudflow areas, and debris flow zones. Hydrologic and topographic information is used by the Water Resources Division to prepare detailed flood hazard zone maps.

5.3.1.3.3 Kern County.

Kern County General Plan 1, Physical and Environmental Constraints Policy 10. The County will allow lands which are within flood hazard areas, other than primary floodplains, to be developed in accordance with the General Plan and Floodplain Management Ordinance, if mitigation measures are incorporated so as to ensure that the proposed development will not be hazardous within the requirements of the Safety Element of the General Plan. The primary floodplain is defined as the area of floodplain bounded by the FEMA flood boundaries. These are based on a flood which has a one percent probability of occurrence in any given year (sometimes referred to as a 100-year flood).

Kern County General Plan 1.10.6, Surface Water and Groundwater Policy 43. Drainage shall conform to the Kern County Development Standards and the Grading Ordinance.

Kern County General Plan 1.10.6, Surface Water and Groundwater Policy 44. Discretionary projects shall analyze watershed impacts and mitigate for construction-related and urban pollutants, as well as alterations of flow patterns and introduction of impervious surfaces as required by the California Environmental Quality Act (CEQA) to prevent the degradation of the watershed to the extent practical.

Kern County General Plan, Safety Element 4.4, Dam Failure, Flooding, and Inundation Implementation Measure B. Discretionary critical facilities within potential inundation areas shall be designed to mitigate or prevent effects of inundation.

Willow Springs Specific Plan, Seismic/Safety Mitigation 2. Permanent structures, including mobile homes, accessory structures, and water wells located in the 100-year floodplain, shall be elevated and/or flood protected to 1.0 foot above the base flood elevation as shown on the County floodplain maps, or 2.0 feet above any backwater conditions, whichever is higher. The foundation shall be designed to protect against the potential scour velocities.

Willow Springs Specific Plan, Seismic/Safety Mitigation 4. New development within the 100-year floodplain shall be regulated in accordance with the Flood Damage Prevention Ordinance and the Kern County Zoning Ordinance.

Willow Springs Specific Plan, Seismic/Safety Mitigation 5. Application of a Map Code 2.5 (Flood Hazard: Special Flood Hazard Areas [Zone A] as identified on the FEMA FIRM map) constraints overlay will be required for those areas within the 100-year floodplain.

Kern County Code, Title 17, Chapter 17.48, Floodplain Management. Chapter 17.48 provides methods and provisions for protecting against flood hazards through: restrictions on uses; flood protection requirements; limits to natural drainage pattern alterations; control of grading and earth-disturbance activities; and preventing or regulating construction of

structures that would present barriers to flood or would divert flood waters such that flood hazards are increased in other areas.

Kern County Zoning Code, Title 19, Chapter 19.72, Floodplain Secondary Combining District. The floodplain secondary (FPS) combining district is applied to those areas lying within special flood hazard areas designated as Zones AO and AH, and Zone A1-A30 on the Flood Insurance Rate Maps (FIRM) that are subject to flooding with relatively low velocities. The ordinance establishes selective restrictions on land use in these areas through special review procedures and development standards.

5.3.2 Environmental Setting

This section describes the existing conditions in the Project region with respect to surface water hydrology and flood hazards. The Project area climate and precipitation are described since they are a major factor in the hydrologic setting as well as the hydraulic network (i.e., the physical characteristics) of the landforms within the Project area.

The Project site is located in the Antelope Valley Watershed and Antelope Valley Groundwater Basin. The following subsections describe the climate, surface hydrology, and flood issues in the vicinity of the Project.

5.3.2.1 Climate

The climate of the Antelope Valley Hydrologic Region is characterized by long, hot, dry summers, and short, mild, relatively wet winters. Storms that have the potential to produce significant amounts of precipitation and flooding are tropical cyclones of North Pacific origin, which normally occur from December through March. As these large winter storms move south over the ocean, they are warmed and accumulate moisture until they are forced landward by high pressure over the Pacific. When the storms reach land, they encounter colder air masses and the orographic effect of the mountains, producing widespread precipitation. These storms often last for several days. In addition to the tropical cyclones, this area of the proposed Project may receive thunderstorms, which can occur at any time of the year. Thunderstorms cover comparatively small areas, but result in high intensity precipitation, usually lasting for less than three hours. On a smaller watershed, thunderstorms can produce flash flooding, which is generally not large enough to produce widespread flooding (CPUC 2006).

The average maximum and minimum winter (January) temperatures in Lancaster are 57°F and 31°F respectively, and in Mojave are 58°F and 34°F, respectively. The average maximum and minimum summer (July) temperatures in Lancaster are 95°F and 66°F respectively, and in Mojave are 97°F and 67°F, respectively. The average annual precipitation ranges from 7.4 inches (Lancaster) to 9.48 inches (Mojave), with over 75

percent of all annual precipitation occurring between the months of December and March. Little precipitation occurs during summer because migrating storm systems traveling over the eastern Pacific are typically diverted from the Antelope Valley area by a high pressure cell. Higher altitude areas have slightly more extreme temperatures and precipitation events that vary somewhat from lower-altitude areas (CPUC 2006). These higher altitude areas (particularly to the south of the Project) can contribute to the runoff at the site.

Surface water hydrology describes flow of surface water systems, including watersheds, floodplains, rivers, streams, lakes, and reservoirs, among others.

5.3.2.1.1 Surface Water Resources. The proposed Project is within watersheds and groundwater basins in Los Angeles and Kern counties. The term "watershed" refers to area of land within which all waterways drain to one specified outlet or body of water, such as a river, lake, ocean, or wetland. Watersheds are separated topographically by areas of elevation, such as ridges, hills, or mountains. All precipitation that occurs within a given watershed (or "basin") area will eventually drain into the same body of water as the rest of the watershed.

The State of California uses a hierarchical naming and numbering convention to define watershed areas for management purposes. This means that boundaries are defined according to size and topography, with multiple sub-watersheds within larger watersheds. The Natural Resources Conservation Service (NRCS), which is part of the U.S. Department of Agriculture (USDA), is responsible for maintaining the California Interagency Watershed Mapping Committee (IWMC), formerly the CalWater Committee. This committee works on watershed mapping and dataset creation throughout the State. The IWMC has defined a set of naming and numbering conventions applicable to all watershed areas in the State, for the purposes of interagency cooperation and management.

5.3.2.1.2 Watersheds. The Project, including off-site transmission lines, lies within the Antelope Valley Watershed, which is a large, closed basin in the western Mojave Desert. This watershed straddles the Los Angeles-Kern County line and drains a total of 3,387 square miles. Approximately 80 percent of the watershed is characterized by a low to moderate slope (0 to 7 percent). The remaining 20 percent consists of foothills and rugged mountains, some of which reach up to 3,600 feet in elevation. The floor of the Antelope Valley Watershed generally lacks defined natural channels outside of the foothills and is subsequently subject to unpredictable sheet flow patterns (LACSD 2005).

The Antelope Valley Watershed is a closed basin with no outlets to the ocean. All water that enters the watershed either infiltrates into the underlying groundwater basin, or flows toward three playa lakes located near the center of the watershed. A playa lake is formed when rain fills a playa, or small, round depression in the surface of the ground. Playa lakes usually have

no outflow of water. The playa lakes in the Antelope Valley Watershed are all located on Edwards Air Force Base, approximately 15 to 30 miles northeast of the AV Solar Ranch One site (refer to Figure 5.3-1). They include the following: Rosamond Lake, which covers approximately 21 square miles and is the closest playa lake to the AV Solar Ranch One site; Rogers Dry Lake, which is located east of Rosamond Lake and encompasses approximately 32 square miles; and Buckhorn Dry Lake, which is located between Rosamond and Rogers Dry Lake to the east, encompassing 3 square miles. These playa lakes are usually dry, and they only receive water following large winter storms. Surface runoff that collects in the dry lakes quickly evaporates, and only a small quantity of water infiltrates to the groundwater due to the nearly impermeable nature of the playa soils (LACSD 2005).

The proposed AV Solar Ranch One Project site is split between the Sacatara Creek-Kings Canyon Watershed and the Amargosa Creek Watershed within the larger Antelope Valley Watershed. These two watersheds contain three subwatersheds: Broad Canyon, Lower Amargosa Creek, and Kings Canyon (refer to Figure 5.3-1).

5.3.2.1.3 Floodplains/Drainage Plan. The Project site and off-site transmission line include FEMA-designated Flood Hazard Areas. Figure 5.3-2 shows FEMA's predicted 100-year flood boundaries (Zone A) for the significant Flood Hazard Areas associated with drainages on the Project site (Figure 5.3-3) (FEMA 2008). A substantial portion of the proposed Project site is also designated by FEMA as being within the 500-year floodplain (Zone X, Shaded). Figure 5.3-4 shows the FEMA flood boundaries for the Flood Hazard Areas associated with drainages along the proposed off-site transmission line (Figure 5.3-3). Approximately 2 miles of the transmission line is located in the 100-year floodplain (Zone A). Any development in a Flood Hazard Area would be required to comply with floodplain management ordinances.

The Drainage Concept Report (Appendix C) provided by Psomas (2009) provides the extent of floodplain supported by detailed Watershed Modeling System (WMS) and HEC-RAS modeling efforts as described in the following sections.

5.3.2.2 Project Site

The proposed Project is located in the Antelope Valley area in unincorporated Los Angeles County, approximately 15 miles northwest of downtown Lancaster. The off-site transmission lines lead due north approximately 3.5 miles into Kern County. The Antelope Valley is bound by the transverse ranges and the San Gabriel Mountains to the southwest and southeast, respectively, and the Tehachapi Mountains to the northwest. The property consists of approximately 2,100 acres of primarily undeveloped land. The Project site is relatively flat, sloping gently downward to the northeast from approximately 2,720 to 2,600 feet

elevation above mean sea level. Drainage on the Project site generally trends in a northeast direction.

The soils present on the Project site consist primarily of the Hanford-Greenfield association and are typically fine to coarse grained sandy loams and loamy sands that are well drained with moderately rapid subsoil permeability. Soil infiltration rates average about 5 inches per hour based on in-situ tests performed during the geotechnical investigation in 2009 (Terracon 2009). These data indicate that site soils are capable of absorbing relatively large amounts of on-site precipitation without resultant runoff, thereby reducing the potential for erosive flows and sediment-laden runoff during precipitation events within this arid region.

The Project site is traversed by three primary ephemeral drainages (identified herein as Drainages A, B, and C), as shown on Figure 4.4-1A and Figure 5.3-3. A fourth ephemeral drainage (Drainage D) is located at the northeastern property boundary and only a small portion of the southern bank of the drainage is on Project site.

As identified in the Drainage Concept Report prepared for the Project site by Psomas (refer to Appendix C of this EIR), the total watershed area that is tributary to the Project site is approximately 23 square miles. The majority of this area (approximately 16 square miles) drains onto the site in the vicinity of West Avenue D (SR-138) and 170th Street West intersection, forming a deeply incised channel (Drainage A). Drainage A flows from this intersection in a northeasterly direction onto the Project site; midway through the site it diminishes in bed and bank features and becomes nearly non-existent. There is also a significant defined channel along the southern edge of the Project site known as Broad Canyon Creek (Drainage C) that receives runoff from approximately 5 square miles.

Based upon the Psomas Design Concept Report, the pre-development flows leaving the Project site range from 9.43 to 4,796.14 cubic feet per second (cfs) for the Los Angeles County Capital Flood 50-year Burned and Bulked Condition; the post-development flows (with Project design measures applied) range from 9.15 cfs to 4,802.19 cfs. Pre- and post-development flow volumes range from 2.28 to 853.67 acre-feet and 2.42 to 851.27, respectively.

5.3.2.3 Off-site Transmission Line Route

The off-site portion of the proposed 230-kV transmission line is approximately 3.5 miles long and planned to be located within, or on private lands adjacent to, the public road ROW of 170th Street West to interconnect to the planned SCE Whirlwind Substation located to the north of the project site in southern Kern County. The proposed transmission line route is shown in detail on Figures 4.3-4A and 4.3-4B in Section 4.0 (Project Description). The portion of the proposed transmission line route in Kern County is located within, and on private land adjacent to, the public road ROW of 170th Street West. As shown on Figures 4.3-

4A and 4.3-4B, there is an expanded study area along portions of the route (Kern County) on the west and east sides of the 170th Street West, depending on the location. The transmission route study area in Kern County is typically 200 feet wide, but varies in width depending on the location. The surface hydrology conditions do not vary in the study area, thus the description provided herein is applicable to the entire study area.

The northern portion of the proposed transmission line route (approximately 2 miles) in southern Kern County traverses primarily agricultural land. The proposed off-site transmission line route along 170th Street West traverses an ephemeral stream (see Figure 5.3-3) based on a review of U.S. Geological Survey 1:24,000 scale topographic map between Kingbird Avenue on the north and the Kern County/Los Angeles County line on the south. However, this ephemeral stream was evaluated during a detailed field survey performed by URS in 2009, and determined not to be present at this location. No defined bed or banks or water marks were found, and it is possible that the stream has changed location or was diverted. The off-site transmission line route is located primarily in the Kings Canyon subwatershed as shown on Figure 5.3-1.

Approximately 2 miles of the proposed off-site transmission line route is located in mapped 100-year floodplains (Zone A) in northern Los Angeles County and over the majority of the transmission line route in Kern County (FEMA 2008) as shown on Figure 5.3-4.

5.3.3 Project Impacts

5.3.3.1 Methodology and Significance Criteria

According to Los Angeles County significance criteria, the proposed Project would result in a significant impact if:

- A major drainage course as identified on USGS quad sheets by a dashed line is located on the project site
- It is located within or contains a floodway, floodplain, or designated flood hazard zone
- It is located in or subject to high mudflow conditions
- It could contribute or be subject to high erosion and debris deposition from run off
- It would substantially alter the existing drainage pattern of the site or area

5.3.3.2 Impact Analysis

5.3.3.2.1 Criteria 1: Is a major drainage course as identified on USGS quad sheets by a dashed line located on the project site?

Construction.

Facility Site. As previously described, the Project site is traversed by three primary ephemeral drainages (identified herein as Drainages A, B, and C), as shown on Figure 5.3-3. A fourth ephemeral drainage (Drainage D) is located at the northeastern property boundary and only a small portion of the southern bank of the drainage is on Project site. Drainages A and C are identified as dashed lines ("blue-line" streams) on the USGS Fairmont Butte quadrangle; however, Drainages B and D are not, and are minor ephemeral drainages. As shown on Figure 5.5-3, an additional drainage was identified as a "blue-line" stream on the USGS quadrangle, but during field investigations preformed by URS in 2009, evidence of past or present water flow at this location was not apparent. There are no drainage improvements proposed as part of the Project. The Project development area specifically avoids all drainages on-site, and incorporates a 100-foot setback from the existing Drainage A (Figure 4.4-1A). The proposed setback from the FEMA Zone A boundary for Drainage C to the facility fenceline is a minimum of 100 feet, and no Project-related development or construction activities would occur within this area. The proposed development setback from Drainage B is a minimum of 20 feet. A sheet pile cutoff wall may be installed approximately 100 feet from the top of banks on both sides of Drainage A along the natural incised channel area (Figure 4.4-1A). If installed, the purpose of the wall would be to act as a protective measure against potential future erosion. Wall installation would require no grading or excavation, and the tops of the sheet piles would be at or below existing grade. The wall would not affect the natural channel flow of the drainage. Thus, no direct impacts to Project site drainages are expected to occur and impacts would be less than significant.

Off-site Transmission Line. A drainage course was identified on the USGS quadrangle that encompasses the Project site and off-site transmission line (Fairmont Butte Quadrangle), but during URS field surveys in 2009 no indicators of an established or historic channel along the proposed off-site transmission route were observed (refer to Figure 5.3-4). Thus, no impacts to drainage courses associated with transmission line construction or operation would be expected to occur. This determination applies to the expanded study area for the transmission line in Kern County as well.

Operation.

Facility Site. As previously discussed, the Project avoids all dashed line drainages ("blue-line" streams) as identified by the USGS Fairmont Butte Quadrangle. The solar field development avoids such drainages via setbacks or avoidance areas. The O&M and

substation facilities are located approximately 4,000 feet from the nearest off-site drainage, and about 2,500 feet from the nearest on-site drainage (refer to Figure 4.4-1A). Thus, no impacts to drainage features would be expected to occur.

Off-site Transmission Line. No major drainage courses as identified on the USGS Fairmont Butte Quadrangle were found during URS field surveys in 2009 along the proposed off-site transmission route; thus, no impacts to drainage courses associated with transmission line operation would be expected to occur.

5.3.3.2.2 Criteria 2: Is the project located within or does it contain a floodway, floodplain, or designated flood hazard zone?

Construction.

Facility Site. As shown on Figure 5.3-2, based on FEMA information for the Project site, the majority of the site is mapped as Zone X, Unshaded, (designated as above the 500-year floodplain and an area of minimal flood hazard), or Zone X, Shaded. Zone X, Shaded is designated as the area between the limits of the 100-year and 500-year floods, and is also used to represent base floodplains of lesser to moderate hazards. Drainage C (Broad Canyon Creek) is mapped by FEMA as Zone A (areas with a 1 percent annual chance of flooding or a 26 percent chance of flooding over 30 years). This area would remain undeveloped and would be avoided by construction activities (the minimum distance from the proposed Project fenceline to the Drainage C floodplain [FEMA Zone A] is approximately 100 feet). Thus, facility site construction would only occur in the lower flood risk areas (Zone X, Unshaded or Zone X, Shaded), would avoid all drainages and Zone A areas, and flood-related hazards and impacts are expected to be less-than-significant.

Off-site Transmission Line. As shown on Figure 5.3-4, approximately 2 miles of the off-site transmission line are located on the edge of the 100-year floodplain and within FEMA Zone A; the remainder is located in Zone X, Unshaded (minimal flood hazard area). Due to the transient and temporary nature of construction over an estimated 4-month period, it is not anticipated that the 1 percent annual chance of flooding signified by Zone A would represent a significant flood hazard to off-site transmission line construction activities.

Operation.

Facility Site. As discussed above for facility site construction, the majority of the Project site is mapped as Zone X, Unshaded (minimal flood risk) or Zone X, Shaded (area of lesser to moderate flood hazard or of shallow flooding). While a Zone A area exists in the vicinity of Drainage C, it is of minor extent and will not be developed. As shown on Figure 4.4-1A, site development will be setback from Drainage C to avoid both the drainage and the Zone A area.

As requested by Los Angeles County, a 100-foot wide and a 65-foot wide easement will be dedicated to the County along Drainage A and Drainage C, respectively, for future flood control purposes. Additionally, a development setback has been established parallel to the Los Angeles County easement along Drainage A. The development setback is 100 feet on each side of the natural incised channel bank for a linear distance of approximately 0.8 mile along the southwest and central portion of the CDFG jurisdictional drainage (refer to Figure 4.4-1A). A 100-foot-wide drainage easement requested by the County is set aside from the east end of the natural incised Drainage A channel to the northeast corner of the Project site as shown on Figure 4.4-1A. No development is proposed in this area with the exception of the proposed subsurface cutoff wall.

As recommended in the Drainage Concept Report, foundations for the tracker or fixed tilt solar panel support units will be designed to withstand scouring or undermining of foundations in areas that may be subject to periodic inundation. However, site development would only occur in the lower flood risk areas (Zone X, Unshaded or Zone X, Shaded) and facility structures would avoid all drainages and Zone A areas. Based on the above considerations, potential impacts on Project operations associated with flood-related hazards are expected to be less-than-significant.

Off-site Transmission Line. Approximately 22 transmission structures (tubular steel poles) would be located within the 100-year floodplain (Zone A) (FEMA 2008) in northern Los Angeles County and southern Kern County (refer to Figure 5.3-4).

The proposed transmission line towers are designed and engineered to withstand potential flooding and erosion hazards. Although approximately 22 transmission towers would be placed within 100-year floodplain boundaries, they would be designed and installed in accordance with applicable floodplain development guidelines. The proposed tubular steel pole design includes 20- to 30-foot deep, concrete reinforced foundations below the ground surface. The poles would typically be approximately 4 to 6 feet in diameter at the base, thereby occupying approximately 50 square feet maximum (including concrete foundation) or 0.001 acre per pole site. Additionally, the poles would typically be spaced approximately 700 feet apart over the length of the route. The pole/foundation design would not be affected by potential flood flows in the Project region. Due to the small pole area within the floodplain and the wide pole spacing, no adverse impacts to the floodplain would occur. Flood-related hazards and impacts related to operation of the off-site transmission line would be less-than-significant.

5.3.3.2.3 Criteria 3: Is the project located in or subject to high mudflow conditions?

As shown on Figure 4.3-2 and assessed in the Geotechnical Engineering Report (Terracon 2009) (refer to Appendix B of this EIR), the Project site and off-site transmission line area

are relatively flat (1 to 2 percent slope) and are not located adjacent to significant slopes. As a result, the Project is not expected to be subjected to high mudflow conditions, and potential impacts related to mudflow conditions would be less than significant.

5.3.3.2.4 Criteria 4: Could the project contribute or be subject to high erosion and debris deposition from run-off?

Construction.

Facility Site. Construction of the proposed Project would involve ground disturbing activities over an estimated 38-month timeframe. Disturbance of soil during construction could result in soil erosion and sedimentation. Construction of the Project would include the following land-disturbing activities that could result in soil erosion, sedimentation and increased flood hazard potential:

- Clearing and mowing of vegetation
- Road construction
- Grading and clearing as needed for temporary lay-down and set-up locations
- Grading, excavation and fill placement required for infrastructure

Approximately 1,955 acres of the 2,100-acre site would be subjected to mowing of vegetation during construction and site preparation activities. Additionally, approximately 990 acres of the 1,955 acres within the overall 2,100-acre site would be subjected to construction activities involving direct ground disturbance such as grading, excavation, and/or placement of facilities (refer to Tables 4.4-1 and 5.7-5). Approximately 6 additional acres would be disturbed during construction of the proposed off-site transmission line. Selective removal of vegetation and site grading and cut-and-fill activities in site development locations would disturb surface soils and increase soil erosion potential until disturbed areas are revegetated and/or stabilized by other means. Exposed and/or eroding sediment could wash into on-site and surrounding ephemeral drainages during a precipitation event thereby exacerbating flood conditions.

Potential Impact 5.3-1: Increase of Erosion and Debris Deposition during Construction.

As described above, Project construction activities would involve earth disturbance and clearing and mowing of existing vegetation, and approximately 990 acres of the 2,100-acre Project site would be subject to direct ground disturbance during construction. This equates to about half of the site; however, construction would be phased and not all of the site would be disturbed at once.

This site disturbance could result in potential impacts associated with increases of erosion and debris deposition due to site runoff. However, compliance with the construction SWPPP and SUSMP, as well as implementation of several Project design and applicant-committed stormwater management measures during construction would minimize the potential for these impacts and reduce them to levels of insignificance. In order to ensure that Project impacts related to erosion and debris deposition would be limited to less than significant levels, the specification and implementation of erosion control and stormwater management measures would be subject to LACDPW review and approval as required by Mitigation Measure 5.3-1 (Erosion Control and Stormwater Management Measures). With implementation of Mitigation Measure 5.3-1 (see Section 5.3.5, Mitigation Measures), potential Project impacts related to erosion and debris deposition would be limited to less than significant levels.

Off-site Transmission Line. The proposed transmission line route is located adjacent to 170th Street West in Los Angeles County and would not require construction of new access roads. For the portion of the transmission line route in Kern County, it is expected that the transmission pole sites would be accessed via short access pathways perpendicular to the disturbed shoulder of 170th Street West (refer to Figures 4.3-4A and B). Work areas of approximately 50 feet by 100 feet would occur at each pole location, and about 4 to 6 stringing sites (approximately 50 feet by 200 feet) would also be needed during construction. These work areas and stringing sites are expected to require little to no grading due to the flat nature of the transmission line location. However, vegetation and soil would be disturbed by vehicles and work activities, and would be expected to result in less than 10 percent reduction in the infiltration and absorption capacity of surface soils. Any potential impacts would be localized and temporary and are expected to be less than significant. In addition, the implementation of BMPs as required by the construction SWPPP/SUSMP would further minimize the potential for impacts to occur. Implementation of Mitigation Measure 5.3-1 would limit impacts to less than significant levels.

Operation.

Facility Site. As previously discussed, the Drainage Concept Report (Appendix C) provides quantities of pre-and post-development flows and volumes for the Project site that represent the Los Angeles County Capital Flood 50-year Burned and Bulked Condition (worst case flood). The pre-development flows leaving the Project site range from 9.43 to 4,796.14 cfs, and the post-development flows (with Project design measures applied) range from 9.15 cfs to 4,802.19 cfs. Pre- and post-development flow volumes range from 2.28 to 853.67 acre-feet and 2.42 to 851.27 acre-feet, respectively.

A summary of these flows and volumes is provided in Table 5.3-1, which includes the site maximum and minimum values, as well as values for Drainages A, B, and C. Based on the

results of the hydrologic analyses performed in the Drainage Concept Report, Psomas concludes that with Project design measures applied, changes in runoff flows and volumes between the pre- and post-development condition would be insignificant. These design measures are based on, and in compliance with, the Low Impact Development (LID) Standards of Los Angeles County (Psomas 2009), and include:

- Conserving Natural Areas: The proposed Project development will avoid all drainages as previously described, and include setbacks and flood easements in accordance with Los Angeles County Public Works Department requirements. As such, the Project will not encroach onto California Department of Fish and Game jurisdictional drainages.
- Minimize Disturbances to Natural Drainage Pattern: The proposed Project is designed to conform to the natural local watershed, and to maintain the surface flow pattern of the pre-developed condition. There are no major grading improvements on the site that would significantly impact the site drainage patterns (Psomas 2009). The existing drainage channels would remain in their natural condition to avoid hydrologic effects such as concentration of flow, scouring, and increased runoff to the down-gradient areas.
- Directing Runoff from Impervious Areas to Infiltration Areas: Los Angeles County LID Standards require the excess volumes determined by hydrologic analyses to be infiltrated throughout the Project site. To comply with the LID Standards, and to meet the Los Angeles County Department of Public Works (LACDPW) requirements for balancing pre- and post-development runoff volume, approximately 9,600 small infiltration basins (approximately 15 feet long by 8 feet wide by 1 foot deep) would be constructed within the solar array. These basins would be installed behind every other row of solar panels, and would be staggered from row to row (refer to Section 4.4.4.2 and Figure 4.4-1B). Additionally, two larger infiltration basins, each having a capacity of 28,300 cubic feet, would be constructed up-gradient of the O&M facility (see Figure 4.4-5A) and substation (see Figure 4.4-5B) areas.

The infiltration basins would function as a series of detention basins that would detain the excess stormwater runoff flow and volume on-site and let the detained stormwater infiltrate into the ground. In addition to balancing the runoff volume, the infiltration basins would also function as an erosion and debris control BMP. Stormwater runoff would flow into the basins, thereby reducing its velocity and decreasing its erosion potential and sediment load.

In addition to the applying the above LID Standards as part of Project design, the Project would also implement operational BMPs.

By implementing the above LID Standards and LACDPW requirements for balanced runoff, the proposed Project would not result in significant changes to site runoff flows and volumes between the pre- and post-development conditions. Thus, the potential for erosion and debris

deposition due to runoff is not expected to significantly increase, and hence significant impacts would not be expected to occur. The operational BMPs would further reduce the potential for erosion or debris deposition; thus, impacts are expected to be insignificant.

Off-site Transmission Line. Once constructed, the off-site transmission line would have little effect on, or contribution to, either erosion or debris deposition, and impacts would be less than significant. The proposed tubular steel poles would not be located within any drainages or flow paths, and thus would not be subject to or cause any erosion or scouring. The transmission line footprint would be minimal; each pole would be spaced approximately 700 feet apart and would only occupy an area of approximately 50 square feet maximum (for a total footprint of approximately 0.001 acre per pole or 0.05 acre total for 46 poles).

The transmission line pole access pathways from the shoulder of 170th Street West in Kern County onto adjacent private properties (refer to Figures 4.3-4A and B) would involve approximately 20-foot wide (maximum) areas that would be subject to periodic, infrequent vehicular disturbance. The infrequent use of these access pathways would potentially result in minor crushing of vegetation and soil compaction. The access pathways would not be graded or maintained, since they are generally located on flat agricultural land. The estimated maximum total acreage that would be subject to periodic vehicular disturbance along the transmission pole access pathways is approximately 0.7 acre. The long-term but infrequent use of these widely dispersed access pathways would be expected to result in less than significant impacts related to either erosion or debris deposition.

Operation of the proposed transmission line would include compliance with California Public Utility Commission (CPUC) General Order (GO) 95, Section III, Rule 35 (Vegetation Management) relative to minimum conductor clearances from vegetation. The vegetation present along the transmission line route is generally agricultural and low in height. The proposed minimum conductor (i.e., transmission lines) clearance is 30 feet above the ground (see Figure 4.4-6), thus vegetation management to maintain compliance with CPUC GO 95 is not expected to be extensive or result in adverse impacts related to erosion or debris deposition from runoff.

5.3.3.2.5 Criteria 5: Would the project substantially alter the existing drainage pattern of the site or area?

Construction.

Facility Site. Construction of the proposed Project may potentially alter the existing drainage pattern of the site. Construction activities would include removal of vegetation, construction of temporary and permanent roads, creation of impervious surfaces, and installation of infiltration basins to control runoff. However, the effect of these activities is not expected to be significant, since: 1) there are no proposed improvements to existing

drainage channels; 2) drainage channels would be avoided during construction; and 3) the flow lines and watershed boundaries of the site would not be changed (Psomas 2009). Additionally, construction would be short-term and temporary. As such, potential impacts to facility site drainage patterns during construction are not expected to be significant.

Off-site Transmission Line. Existing drainage patterns would not be substantially altered as a result of transmission line construction, since: 1) work sites and stringing sites are expected to require little, if any, grading due to the flat nature of the area; and; 2) no drainage channels would be affected. Additionally, construction would be short-term and temporary (approximately 4 months). Potential impacts to drainage patterns along the transmission line route during construction would be less than significant.

Operation.

Facility Site. As previously described, the proposed Project will be designed in accordance with Los Angeles County LID Standards and well as LACDPW requirements for balanced site runoff. As such: 1) the Project would avoid all drainages and conform to the natural local watershed; 2) encroachment on California Department of Fish and Game jurisdictional drainages would not occur; and 3) on-site grading improvements would not significantly impact the site drainage patterns (Psomas 2009). In addition, the existing drainage channels would remain in their natural condition to avoid hydrologic effects such as concentration of flow, scouring, and increased runoff to the down-gradient areas (Psomas 2009). Based on these considerations, no substantial alterations in site drainage patterns are expected to occur and impacts would be less than significant.

Off-site Transmission Line. The off-site transmission line would not be expected to significantly impact the existing drainage patterns along the transmission route, including pole locations, during operation. The proposed tubular steel poles would not be placed within any drainages or flow paths, and the transmission line footprint (including access pathways, as applicable) would be minimal; each pole would be spaced approximately 700 feet apart and would occupy an area of less than 50 square feet maximum (for a total footprint of about 0.05 acre for 46 poles), plus approximately 0.7 acre for access pathways. Thus, significant interference with drainage patterns and flows would not occur, and potential impacts would be less than significant.

5.3.3.2.6 Indirect Impacts. Implementation of the proposed Project would not be expected to result in any potentially significant indirect effects related to flood hazards for the proposed facility site and/or the off-site transmission line.

5.3.4 Cumulative Impacts

Of the identified cumulative projects in Section 4.6, the Fairmont Butte Motorsports Park and the SCE TRTP Segment 500-kV transmission line have the potential to impact the same watersheds as the proposed Project (i.e., Amargosa Creek Watershed and Sacatara Creek-Kings Canyon Watershed). The proposed SCE TRTP, Segment 4 transmission line is located approximately 1.5 miles east of the proposed AV Solar Ranch One Project site at its closest point. The proposed AV Solar Ranch One transmission line and the SCE TRTP project both involve high voltage transmission facilities in northern Los Angeles and southern Kern counties in the vicinity of SCE's planned Whirlwind Substation. Due to the small footprint and wide spacing of the AV Solar Ranch One and SCE's proposed transmission structures, no potential for cumulative flood hazard related impacts exists with the proposed TRTP project. The Draft EIR for the proposed Fairmont Butte Motorsports Park Project concludes that the motorsports project would not result in any potentially significant flood hazard related impacts (LACDRP 2009). Additionally, the proposed AV Solar Ranch One Project site is generally hydrologically separated from the Fairmont Butte Motorsports Park project site, thus the potential for cumulative flood hazard impacts is limited.

The proposed Project's construction and operation activities have the potential to increase erosion, sediment load and debris material into runoff flows. However, the Project would implement engineering and BMP measures during construction and operation, and as a result, would be expected to reduce potential erosion, sediment loads and debris deposition to less-than-significant levels. As discussed in Section 5.3.3.2.4 under Operations, based on the results of the hydrologic analyses performed by Psomas (2009), with Project design measures applied, changes in runoff flows and volumes between pre- and post-development conditions would be insignificant. Additionally, the proposed Project would not be expected to exacerbate flood hazards on- or off-site and, therefore, would not be expected to have the potential to significantly contribute to incremental cumulative effects relative to flood hazards. Potential cumulative effects related to flood hazards would be less than significant.

5.3.5 Mitigation Measures

The Project shall implement an erosion control plan and construction SWPPP and BMPs under a National Pollutant Discharge Elimination System (NPDES) General Permit for Construction Activities in order to manage and prevent potential pollution and sediment entry into off-site flows during the construction phase of the Project. Potential flood hazard related impacts associated with operation of the proposed Project would be less than significant with implementation of the Applicant-committed erosion control and stormwater management measures/BMPs discussed in Section 5.3.3.2.4, and Mitigation Measure 5.3-1. No additional measures are necessary to limit potential cumulative flood-related impacts to less-than-significant levels.

Mitigation Measure 5.3-1: Erosion Control and Stormwater Management Measures. In order to ensure that Project-related erosion and debris deposition as well as stormwater related impacts would be minimized, the design measures specified in the Drainage Concept Report (Psomas 2009) and the following measures shall be implemented subject to review and approval by the Los Angeles County Department of Public Works (LACDPW):

- Avoidance of all drainage areas: Construction and operational phase activities shall avoid all on-site drainages and FEMA Zone A floodplain areas. Solar field development shall be set back from the two major drainages (Drainages A and C) by a minimum of approximately 100 feet from the tops of banks for both Drainages A and C. Additionally, all Project development shall be set back a minimum of 100 feet from the FEMA Zone A floodplain for Drainage C.
- Applicant shall comply with NPDES requirements of the Lahontan Regional Water Quality Control Board (LRWQCB) and the LACDPW.

5.3.6 Level of Significance after Mitigation

With consideration of Applicant-committed design measures, erosion control/stormwater management BMPs, and implementation of the design measures specified in the Drainage Concept Report and Mitigation Measure 5.3-1 to the satisfaction of the LACDPW, potentially significant flood hazard, erosion, and debris deposition related impacts associated with the proposed Project would be less than significant.

5.3.7 References

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TABLE 5.3-1
CALCULATED PRE- AND POST-DEVELOPMENT FLOWS AND VOLUMES[1]

	Pre-development		Post-development[2]	
Outlet	Flow (cfs)	Volume (Acre-feet)	Flow (cfs)	Volume (Acre-feet)
Un-named Sub-basin Outlet (site minimum)[3]	9.43	2.28	9.15	2.42
Drainage A (site maximum)[4]	4,796.14	853.67	4,802.19	851.27
Drainage B[5]	76.40	33.09	101.83	28.54
Drainage C[6]	2,016.54	185.83	2,016.52	186.15

1 Source: Psomas 2009. Flows and volumes represent the Los Angeles County Capital Flood 50-year Burned and Bulked Condition (worst case). Refer to Appendix C of this EIR for more information.

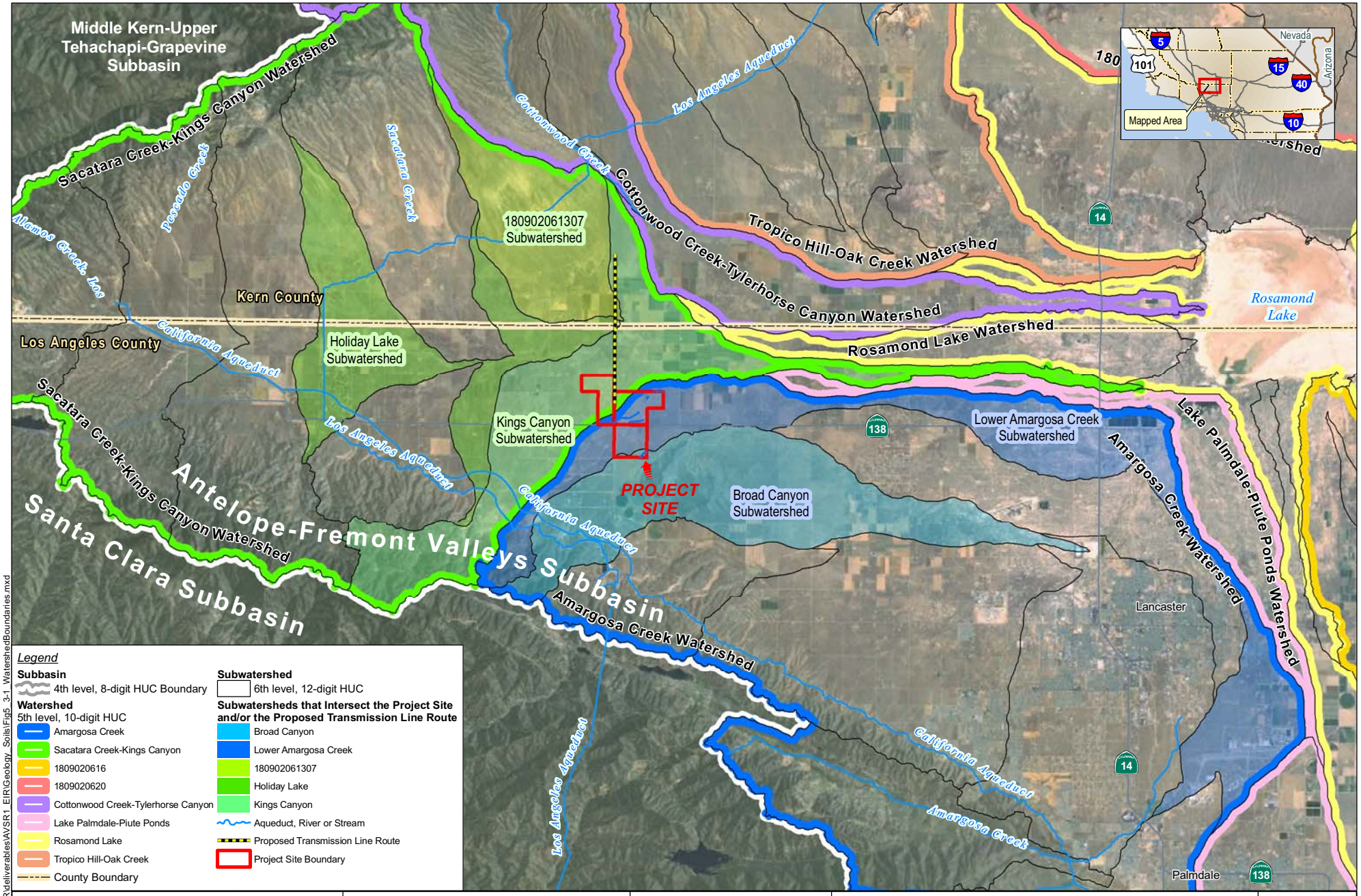
2 After design measures have been applied.

3 Site outlet for this un-named sub-basin is located at the intersection of 170th Street West and West Avenue C (refer to Figure 4.4-1A).

4 Site outlet for Drainage A is the northeast corner of the Project site at the intersection of 155th Street West and West Avenue C (refer to Figure 4.4-1A).

5 Site outlet for Drainage B is located approximately 0.2 mile north of SR-138 along 160th Street West (refer to Figure 4.4-1A).

6 Site outlet for Drainage C is near the southeast corner of the overall Project site (refer to Figure 4.4-1A).



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N

1:253,440

0 1 2 3 4 5 Miles

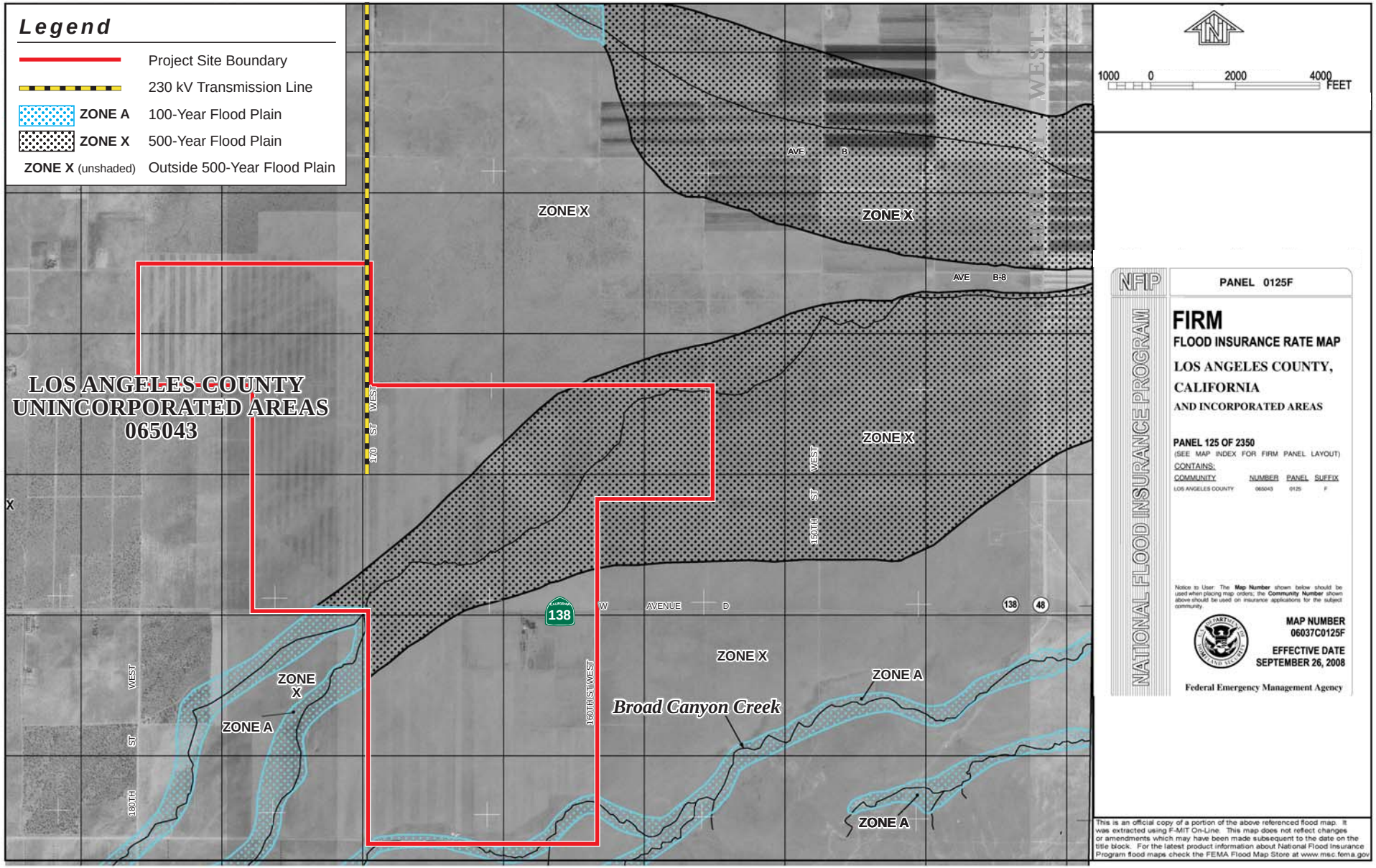
Source: [1] USDA/NRCS - National Cartography and Geospatial Center: 12-Digit Watershed Boundary Dataset (WBD) 1:24,000 (1999), [2] I-cubed Nationwide Prime - Aerials Express (2007-02-15 image date, 0.3m resolution), [3] 1m Natural Color NAIP (2005).

AV Solar Ranch One EIR

Figure 5.3-1. HYDROLOGIC SUBBASINS AND WATERSHEDS IN PROJECT AREA

2010

T/Ladd/NextLight/AVSR3/FloodHazards/709-120A

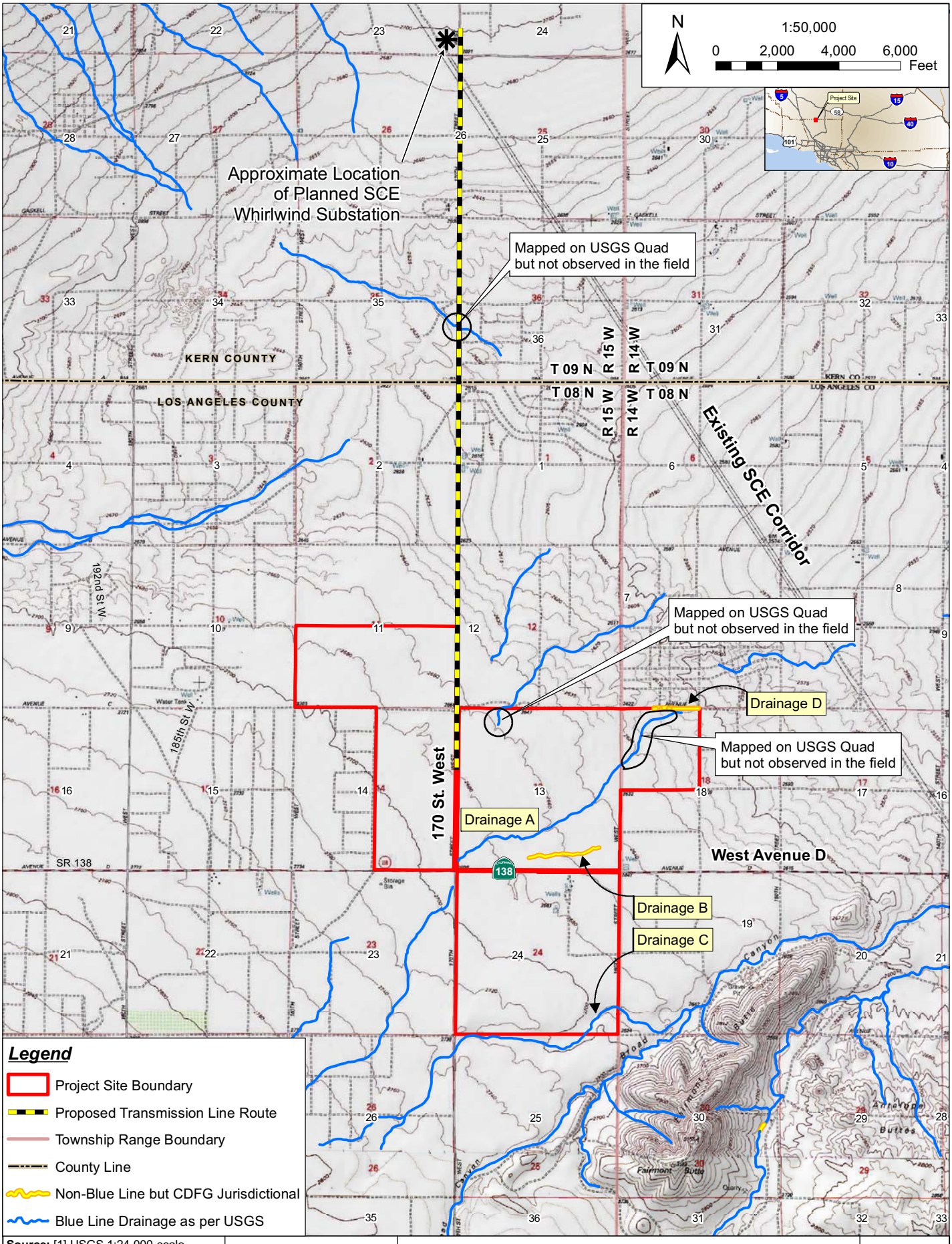


Source:
FEMA
Map Number 06037C0125F
Dated 9/26/08

AV Solar Ranch One EIR

Figure 5.3-2. FEMA FLOOD INSURANCE RATE MAP FOR PROJECT SITE AREA

2010



Source: [1] USGS 1:24,000-scale topographic map created with TOPO!, (c)2001 National Geographic Maps, All Rights Reserved, [2] ESRI StreetMap USA (2007), [3] USGS NHD Flowline (2007), [4] URS Corporation (2009).

AV Solar Ranch One EIR

Figure 5.3-3. DRAINAGES IN SITE VICINITY

2010

T:\NextLight_AV_EIR\deliverables\AVSR1_EIR\Geology_Soils\Fig5_3-3_DrainagesInSiteVicinity.mxd

T/Ladd/NextLight/AVSR3/FloodHazards/709-122A

Legend

- Project Site Boundary
- 230 kV Transmission Line
- **ZONE A** 100-Year Flood Plain
- **ZONE X** 500-Year Flood Plain
- **ZONE X** (unshaded) Outside 500-Year Flood Plain

KERN COUNTY UNINCORPORATED AREAS 060075

Approximate Location of Planned SCE Whirlwind Substation

Off-Site Transmission Line

LOS ANGELES COUNTY UNINCORPORATED AREAS 065043

PROJECT SITE

Kern County

Los Angeles County

Cottonwood Creek

Broad Canyon Creek

ZONE A

ZONE X

MAP SCALE 1" = 2000'

1000 0 2000 4000 FEET

0 0 600 1200 METERS

NFIP NATIONAL FLOOD INSURANCE PROGRAM

PANEL 3975E

FIRM

FLOOD INSURANCE RATE MAP

KERN COUNTY, CALIFORNIA AND INCORPORATED AREAS

PANEL 3975 OF 4125

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
KERN COUNTY	060075	3975	E

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER 06029C3975E

EFFECTIVE DATE SEPTEMBER 26, 2008

Federal Emergency Management Agency

NFIP NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0125F

FIRM

FLOOD INSURANCE RATE MAP

LOS ANGELES COUNTY, CALIFORNIA AND INCORPORATED AREAS

PANEL 125 OF 2350

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
LOS ANGELES COUNTY	065043	0125	F

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER 06037C0125F

EFFECTIVE DATE SEPTEMBER 26, 2008

Federal Emergency Management Agency

Source:
FEMA
Map NumberS 06037C0125F and 06029C3975E
Dated 9/26/08

AV Solar Ranch One EIR

Figure 5.3-4. FEMA FLOOD INSURANCE RATE MAP FOR OFF-SITE TRANSMISSION LINE ROUTE

2010

5.2 GEOTECHNICAL HAZARDS

This section includes the following discussions as they relate to the proposed Project and the potential for geotechnical hazards:

- Summaries of laws and regulations related to geology, geotechnical hazards, and soils.
- A description of the existing conditions related to geology, geotechnical hazards, and soils for the proposed Project. Existing conditions were determined from review of available published and unpublished literature, online sources, and a Geotechnical Engineering Report prepared by Terracon Consultants, Inc. in August, 2009 (Terracon 2009) (refer to Appendix B of this EIR).
- Impact analyses that address the construction and operational phases as well as cumulative impacts.
- A description of proposed mitigation measures, as applicable.

5.2.1 Regulatory Setting

Regulations, plans, and standards for management of geologic and seismic hazards have been promulgated by state, county and local government. Federal and state government allows local counties and cities to manage and/or implement many of the federal and state regulations relating to the construction and operation of facilities. A summary of potentially applicable regulatory programs are presented below.

5.2.1.1 Federal

No applicable regulatory statutes.

5.2.1.2 State

5.2.1.2.1 Earthquake Fault Zoning Act, California Public Resources Code 25523(a): 20 CCR § 1252 (b) and (c). The Alquist-Priolo (A.P.) Earthquake Fault Zoning Act (Act)of 1972 (formerly the Special Studies Zoning Act) regulates development and construction of buildings intended for human occupancy to avoid the hazard of surface fault rupture. The Act provides for the adoption and administration of zoning laws, ordinances, rules, and regulations by cities and counties in implementation of the general plan that is in effect in any city or county. It is intended to provide policies and criteria to assist cities, counties, and state agencies in the exercise of their responsibility to prohibit the location of developments and structures for human occupancy across the trace of active faults. Further, it is the intent of the Act to provide the citizens of the state with increased safety and to minimize the loss of life during and immediately following earthquakes by facilitating seismic retrofitting to strengthen buildings, including historical buildings, against ground shaking.

This Act groups faults into categories of active, potentially active, and inactive. Historic and Holocene age faults are considered active, Late Quaternary and Quaternary age faults are considered potentially active, and pre-Quaternary age faults are considered inactive. These classifications are qualified by the conditions that a fault must be shown to be "sufficiently active" and "well defined" by detailed site-specific geologic explorations in order to determine whether building setbacks should be established.

5.2.1.2.2 Seismic Hazards Mapping Act, California Public Resources Code 2695(a): (1) and (3)–(5). The Seismic Hazards Mapping Act of 1990 (Public Resources Code, Chapter 7.8, Division 2) directs the California Geological Survey (CGS) to delineate Seismic Hazard Zones. The purpose of the Act is to reduce the threat to public health and safety and to minimize the loss of life and property by identifying and mitigating seismic hazards. Cities, counties, and state agencies are directed to use seismic hazard zone maps developed by CGS in their land-use planning and permitting processes. The Act requires that site-specific geotechnical investigations be performed prior to permitting most urban development projects within seismic hazard zones. It addresses the effects of strong ground shaking, liquefaction, landslides, or other ground failure and other seismic hazards caused by earthquakes.

5.2.1.3 Local

Elements of the General Plans for the counties and other areas through which the Project passes contain policies for the avoidance of geotechnical hazards.

5.2.1.3.1 Los Angeles County. The Safety Element of the Los Angeles County General Plan (LACDRP 1990) provides goals and policies to reduce impacts from seismic and geotechnical hazards and provide a safer environment. The two main policies that are potentially relevant to the Project are: 1) minimize injury and loss of life, damage, and social, cultural, and economic impacts caused by earthquake hazards, and 2) protect public safety and minimize the social and economic impacts from geotechnical hazards. Proper design of the Project facilities, including all mitigation measures outlined in this document, would meet these goals and would be consistent with the Los Angeles County Safety Element.

5.2.1.3.2 Antelope Valley Areawide General Plan. The Antelope Valley Areawide General Plan (LACDRP 1986) is a component of the Los Angeles County General Plan and provides policies related to public planning in the Antelope Valley area, including policies related to seismic and geotechnical hazards. These policies generally include enforcing standards and criteria to reduce impacts from seismic and geotechnical hazards, advocating detailed site evaluations and improved seismic design and construction standards for critical linear system facilities, and programs and practices for dealing with erosion, settlement, and

other soil-related hazards. The Project would be consistent with these policies through implementation of Project design and mitigation measures as outlined in this document.

5.2.1.3.3 Kern County. The Safety Element (Chapter 4) of the Kern County General Plan (KCPD 2004) provides policies and measures to minimize injuries and loss of life and reduce property damage from seismic and geotechnical hazards. Kern County has developed a map of Seismic, Landslides, and Steep Slope Hazards Constraints. Seismic Hazards were developed based on the Alquist-Priolo Special Study Zone. Landslide Hazards are defined as areas of downslope ground movement, and Steep Slopes as having an average slope of 30 percent or steeper. No new development is allowed in the hazard zones areas unless technical studies demonstrate no "unmitigated significant impact." The main policy relevant to the Project is "The County shall encourage extra precautions be taken for the design of significant lifeline installations, such as highways, utilities, and petrochemical pipelines." The Project would be consistent with these policies as they apply to the northern portion of the proposed off-site 230-kV transmission line, which is the only portion of the Project located in Kern County.

5.2.2 Environmental Setting

5.2.2.1 Physiographic/Geologic Setting

The proposed Project site and off-site 230-kV transmission line route lie within the Antelope Valley, in unincorporated Los Angeles County and southern Kern County (northern end of proposed transmission line only). The Antelope Valley is bound by the Transverse Ranges and San Gabriel Mountains to the southwest and southeast, respectively, and the Tehachapi Mountains to the northwest. The Project site is relatively flat (ranging from approximately 1 to 2 percent gradient), sloping gently downward to the northeast from approximately 2,720 to 2,600 feet above mean sea level. The topography and slope is similar along the off-site portion of the transmission line route, which extends approximately 3.5 miles north of the Project boundary (see Figures 4.3-2 and 4.3-4A and B).

The proposed Project is situated within the westernmost portion of the Mojave Desert Geomorphic Province in Southern California. Geologic structures within the Mojave Desert primarily consist of isolated mountain ranges separated by vast expanses of desert plains, with a predominately northwest-southeast faulting trend, and a secondary trend of east-west (parallel to the Transverse Ranges Province).

The Antelope Valley is a large, undrained topographic basin characterized by relatively flat lying topography and extensive valley fill deposits. In the Project area, these deposits consist primarily of Quaternary alluvium (Qal) over most of the Project area, with Pleistocene non-marine (Qc) deposits to the southeast (Figure 5.2-1). Scattered buttes resulting from Miocene-age extrusive rocks form the only topographic break across the central portion of

the valley. The Fairmont Butte, located to the southeast of the Project site, is underlain by volcanic rock, and the adjacent Antelope Butte is underlain by granitic rock. The principal bounding faults include the San Andreas Fault located approximately 6.1 miles to the southwest, and the Garlock Fault located approximately 16 miles to the northwest (see Figure 5.2-1).

5.2.2.2 Geotechnical Hazards

The following section provides a discussion of the potential Project geotechnical hazards as identified by the Geotechnical Engineering Report performed by Terracon (Terracon 2009) included as Appendix B of this EIR. Recommendations from this report will be used to develop final Project engineering design.

5.2.2.2.1 Faults and Seismicity. The proposed Project is located in a seismically active area. Figure 5.2-2 presents a regional fault and epicenter map showing the approximate location of the Project relative to seismic sources and past earthquakes. Active and potentially active faults have been mapped in the region and documented by a number of government agencies and scientific entities. The type and magnitude of seismic hazards affecting the Project area are dependent on the distance to causative faults, the intensity, the magnitude of the seismic event, and soil characteristics. Table 5.2-1 indicates the distance of the fault zones and the associated maximum credible earthquake that can be produced by nearby seismic events, as calculated by the EQFAULT program (Terracon 2009).

5.2.2.2.2 Ground Motion. In order to estimate the seismic ground motion at the Project area, Terracon reviewed seismic map information and performed a probabilistic analysis using the FRISKSP computer program and associated attenuation curves. Based on these sources the peak ground acceleration at the Project area for a 10 percent Probability of Exceedance in 50 years is expected to be about 0.7 of the gravitational acceleration (g).

5.2.2.2.3 Fault Rupture/Fault Displacement. Based on the Geotechnical Engineering Report (Terracon 2009), the Project area boundaries are not within an Alquist-Priolo Earthquake Fault Zone.

The San Andreas Fault is classified as a Class A fault by the State of California and is a right-lateral strike slip fault. The section of this fault nearest the Project site is known as the "1857 Rupture," and is approximately 96 miles long with an expected Maximum Magnitude of 7.2. Data collected by Terracon indicate that the 1857 Rupture has a slip rate of 25±0.4 millimeters per year, and is poorly constrained. Based on the distance from the San Andreas Fault and the lack of evidence of other faults in the Project vicinity, the potential for surface rupture at the Project area may be considered as "low" during an earthquake event.

5.2.2.2.4 Liquefaction and High Groundwater Level. Liquefaction is the phenomenon whereby saturated soils develop high pore water pressures during seismic shaking and lose their strength characteristics. This phenomenon generally occurs in areas of high seismic activity, where ground water is shallow and loose granular soils or hydraulic fill soils are present.

The Terracon Geotechnical Engineering Report has indicated that ground water depths in the Project area range from approximately 130 feet to over 200 feet below ground surface (bgs). Additionally, water depths taken from the existing on-site agricultural well (URS 2009) indicate a water depth of approximately 140 feet bgs. Based on this information, the potential for liquefaction is considered to be low.

5.2.2.2.5 Hydrocompaction and Subsidence. Hydrocompaction is a condition where dry or moist soils undergo settlement upon being wetted. The Geotechnical Engineering Report did not indicate that on-site soils were susceptible to hydrocompaction. However, it was noted that construction earthwork during wet site conditions may result in the disturbance of on-site soils and that wet weather earthwork operations may need to be temporarily halted should soil moisture contents become elevated to levels well above optimum.

Subsidence is the result of fluid withdrawal from compressible sediments, and may also be triggered by seismic events. The Terracon Geotechnical Engineering Report did not indicate that on-site soils are susceptible to subsidence.

5.2.2.2.6 Landslides and Slope Stability. The Project area is located on a relatively flat (1 to 2 percent slope) alluvial fan and is not subject to landslides or slope failures. Additionally, the County of Los Angeles General Plan (LACDRP 1990, Plate 5) identifies the Project to be in a stable region. Based on these considerations, the potential for landslides or slope failures is considered to be low. However, Terracon 2009 indicates that localized instability in the form of slope raveling, caving and sloughing should be expected in construction excavations and trenches at the Project area that extend into granular materials with little to no cohesion.

5.2.2.2.7 Soils.

USDA Surface Soils Information. Based on the Soil Survey for Antelope Valley Area, California (USDA-NRCS SSURGO 2007) approximately 12 soil types occur in the Project area, which fall into 5 soil series: Greenfield, Hanford, Hesperia, Ramona, and Rosamond. Figure 5.2-3 provides a soils map showing the locations of these soils series as well as a brief description. As indicated on Figure 5.2-3 and discussed in Terracon 2009, the soils of the Project area consist primarily of the Hanford-Greenfield association. A summary of significant characteristics, including the description, potential water and wind erosion susceptibility, and risk of corrosion are provided in Table 5.2-2. In general, the soils consist

of fine to coarse grained sandy loams and loamy sands that are well drained with moderately rapid subsoil permeability (Terracon 2009).

Geotechnical Investigation Soils Information. Based on the results of the Terracon geotechnical investigation, the Project surface and near-surface soil conditions (i.e., at depths of 5 feet or less) can be characterized into two general types of soil zones: Zone 1 is comprised primarily of clayey sand and sandy silt, and Zone 2 is comprised primarily of silty sand and sand. The approximate locations of these zones are shown on Plate 5 of Appendix B, and their typical geotechnical characteristics are summarized below:

- Both Zone 1 and 2 soils have densities that range from loose to very dense.
- Infiltration rates as indicated by in-situ tests (performed at approximately 1 foot depth) for each soil zone are as follows: 1) Zone 1 values range from 6 to 13 centimeters per hour (average 10), and 2) Zone 2 values range from 12 to 21 centimeters per hour (average 15).
- Both Zone 1 and 2 soils exhibit low expansive potentials when compacted and subjected to light loading such as those proposed by the Project structures.
- Terracon 2009 test results show that the pH of the on-site soils ranges from approximately 6.03 to 7.44 and minimum electrical resistivity ranges from 3,800 to 20,000 ohm-centimeters. This would indicate a corrosion potential of low to moderate.

Beginning at depths below 5 feet and extending to the final depths of exploration (50 feet), the surface and near-surface soils were underlain by stratified layers of clayey sands, silty sands, and silt, with occasional layers of clays.

5.2.3 Project Impacts

5.2.3.1 Methodology and Significance Criteria

The potential for the proposed Project to impact geologic or soil conditions or be impacted by geotechnical hazards is based on the CEQA significance criteria as specified by the Los Angeles County Department of Regional Planning (LACDRP). Potential impacts have been assessed using the following criteria from the LACDRP Initial Study Environmental Checklist (see Appendix A of this document):

- Would the proposed Project expose people or structures to potentially substantial adverse effects, including the risk of loss, injury, or death involving:
    - An active or potentially active fault zone, Seismic Hazards Zone, or Alquist-Priolo Earthquake Fault Zone?

  - A major landslide(s)?
  - High slope instability?

- Is the Project subject to high subsidence, high groundwater level, liquefaction, or hydrocompaction?
- Is the Project considered a sensitive use (school, hospital, public assembly site) located in close proximity to a significant geotechnical hazard?
- Will the Project entail substantial grading and/or alteration of topography including slopes of more than 25 percent?
- Would the Project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

5.2.3.2 Impact Analysis

The impact analyses in this section were performed by applying the significance criteria presented in Section 5.2.3.1 to applicable baseline data (Section 5.2.2) and Project description information (Section 4.0).

5.2.3.2.1 Criteria 1: Would the proposed project expose people or structures to potentially substantial adverse effects, including the risk of loss, injury, or death involving an active or potentially active fault zone, seismic hazards zone, or Alquist-Priolo Earthquake Fault Zone?

Construction. The County of Los Angeles General Plan (LACDRP 1990, Plate 1), does not identify the Project facility site or off-site transmission line as being located in an active or potentially active fault zone, nor in the near vicinity of major fault zones (the San Andreas fault is the nearest regional fault, and is located approximately 6.1 miles to the southwest of the Project area). The State of California has not mapped Seismic Hazard Zones for the Project region. The Terracon Geotechnical Report indicated that the Project area is not located within an Alquist-Priolo Earthquake Fault Zone. Thus, based on existing information, neither the Project facility site or the off-site transmission line are located in an active or potentially active fault zone, known Seismic Zone, or Alquist-Priolo Earthquake Fault Zone. Terracon (2009) indicates that the potential for fault rupture at the Project area is expected to be "low" during an earthquake event; however, the Project is located in a seismically active region, and moderate to strong ground motion may potentially occur.

The potential exists for the Project to be subject to ground motion during construction. However, because of the temporary nature of the construction period (about 3 years) relative to the frequency of occurrence of significant seismic events (Terracon [2009] estimates that the peak acceleration of approximately 0.7g has a 10 percent Probability of Exceedance in 50

years), the potential for Project construction to expose people or structures to substantially adverse effects due to strong ground motion is not expected to be significant.

Operation. The Terracon Geotechnical Report was prepared to identify geologic conditions and potential geologic hazards to support final engineering design of the Project facilities. All Project operational structures associated with the facility site and off-site transmission line will be designed and constructed: 1) using the recommendations and site-specific seismic design parameters as specified in the report, and 2) in conformance with the appropriate California Building Code (CBC) criteria and applicable industry standards. With implementation of Mitigation Measure 5.2-1 specified in Section 5.2.5, it is expected that these design and construction measures would reduce geotechnical related hazards and associated impacts to Project facilities from fault rupture or ground shaking to a less than significant level.

5.2.3.2.2 Criteria 2: Would the proposed project expose people or structures to potentially substantial adverse effects, including the risk of loss, injury, or death involving a major landslide(s)?

The Project area is generally flat (approximately 1 to 2 percent slope) and is not located on or immediately adjacent to either steeply sloping ground or landslides (refer to Figure 4.3-2). Additionally, based on the County of Los Angeles General Plan (LACDRP 1990, Plate 5), the Project is not in an area of active landslides, or in an area of high landslide potential. Further, due to the relatively flat topography, the potential for seismically induced landslides is also low. Based on this information, neither construction nor operation of the proposed Project facility site or off-site transmission line would be expected to expose people or structures to substantial adverse effects due to landslides.

5.2.3.2.3 Criteria 3: Would the proposed project expose people or structures to potentially substantial adverse effects, including the risk of loss, injury, or death involving high slope instability?

Refer to the discussion in Section 5.2.3.2.2 above regarding landslides; the Project area is relatively flat, and the County of Los Angeles General Plan (LACDRP 1990, Plate 5) identifies the Project to be in a stable region with respect to slope stability. Thus, no impacts to the Project facility site or off-site transmission line from slope instability are expected, and neither construction nor operation of the proposed Project is expected expose people or structures to potentially substantial adverse effects due to high slope instability.

5.2.3.2.4 Criteria 4: Is the project subject to high subsidence, high groundwater level, liquefaction, or hydrocompaction?

Based on existing well information (URS 2009) and the Terracon 2009 report, groundwater depths at the Project area are expected to range from 130 feet to over 200 feet bgs. Thus, potential impacts to either the Project facility site or off-site transmission line due to high groundwater level or associated phenomenon such as high subsidence, liquefaction, or hydrocompaction, are expected to less than significant for both construction and operation. Implementation of the recommendations in the geotechnical report (Terracon 2009), as well as the applicable CBC and County standards, will further ensure that potential impacts would be mitigated to less than significant levels.

5.2.3.2.5 Criteria 5: Is the project considered a sensitive use (school, hospital, public assembly site) located in close proximity to a significant geotechnical hazard?

The proposed Project involves development of a solar facility, which is not considered a sensitive land use.

5.2.3.2.6 Criteria 6: Will the project entail substantial grading and/or alteration of topography including slopes of more than 25 percent?

Construction. It is estimated that the Project would require up to approximately 180,000 cubic yards of grading-related cut and fill associated with facility site construction. Approximately 70,000 cubic yards of excavation is anticipated to be required for installation of underground facilities and the off-site transmission line foundations (refer to Table 4.4-1 and Figure 4.4-12). The Project grading would be:

- Balanced cut and fill.
- Performed in accordance with a Grading Plan approved by the Los Angeles County Department of Public Works.
- Primarily associated with permanent 30-foot-wide roads and infiltration basins that will be installed to meet the Los Angeles County Department of Public Works requirements for post-development runoff volume. The infiltration basins will be designed to: 1) function as a series of detention basins designed to retain stormwater runoff flow and volume on-site and allow it to infiltrate into the ground, and 2) preserve local drainage and on-site/off-site flow characteristics.
- Minimize alterations to existing topography to the extent feasible. No slopes of more than 25 percent will be altered.
- Performed in conjunction with Best Management Practices (BMPs) and site restoration to minimize potential impacts due to wind and water erosion.

Facility Site. The potential impacts due to Project grading or topographic alteration during construction are expected to be less than significant. A more detailed description of the proposed Project grading is provided below.

Because of the flat topography at the site, the Project grading required to prepare the site for construction of the solar PV facilities installation would be minimized. The foundations for both the tracker and fixed-tilt units can be adapted for installation on uneven ground and reduce the need for grading, as follows: 1) the solar panel units are equipped with adjustable telescoping legs; and 2) the pile supports for the fixed-tilt units can be cut or driven to different lengths as needed.

Grading will be required for the O&M and substation areas, as well as the permanent access roads. However, the majority of grading will be associated with the infiltration basins and spoils banks. As shown on the site grading plan (Figure 4.4-12), the cut/fill for the basins and banks is estimated to be up to approximately 113,000 cubic yards. The total Project balanced cut and fill is estimated to be approximately 180,000 cubic yards. Figure 4.4-12 and Table 4.4-1 provide an itemized description of estimated cut and fill components that shows approximately 180,000 cubic yards of balanced cut and fill. It is expected that all 180,000 cubic yards of cut material will be used on-site during construction. Also, an additional 67,000 cubic yards of soil from on site excavations (non-grading related) would occur during Project construction. This excavation would be balanced on site (see Table 4.4-1). If drilled pier foundations are used, approximately 1/3 cubic yard of soil will be excavated for each pier. This soil will be spread on the ground adjacent to the individual piers. The total quantity of balanced cut and fill and non-grading related excavations on the site will depend on the final Project design and associated options selected, including foundation type(s). The worst case combined cut and fill (grading) and excavation (non-grading related) quantity for development of the Project site is estimated at approximately 250,000 cubic yards of soil material that would be balanced on the site.

Areas disturbed due to Project construction activities would be stabilized during construction to minimize wind and water erosion and generation of fugitive dust, by watering and/or the use of dust palliatives or tackifiers. Chipped mulch created as a result of selective vegetation removal, may also be spread on-site for this purpose, as appropriate. Cleared and graded temporarily disturbed surfaces that would not be subject to future disturbance would be revegetated as practical to minimize dust and erosion. To facilitate redevelopment of on-site vegetation, topsoil generated by Project grading would be saved and spread over disturbed areas, as available. Project construction would be performed in accordance with a Storm Water Pollution Prevention Plan (SWPPP) that would include BMPs to control erosion and storm water runoff.

A preliminary description of BMPs that would be implemented to minimize both wind and water erosion during Project construction and grading is provided in Section 4.4.6.11. Finalized and site-specific BMPs would be designed by the construction contractor in accordance with regulations and Project permit conditions.

***Off-site Transmission Line*.** Construction of the transmission line would typically require an area approximately 100 feet in length by 50 feet in width at each pole location for use as temporary laydown or staging. In addition, it is likely that six conductor-stringing sites of approximately 50 feet by 200 feet would be required: one at each end of the transmission line route, two near the midpoint, and two in Kern County in the vicinity of the crossing of the existing SCE transmission corridor (refer to Figure 4.3-4A). However, no significant grading is expected to be required for these areas due to the flat topography of the Project area for the off-site transmission route. Construction of the 230-kV transmission line would require augering of foundation holes (typically 6- to 8-foot diameter holes up to 30 feet deep) at each pole location. Up to approximately 56 cubic yards of subsurface soil material would typically be excavated at each pole location. The excavated material would be spread in a uniform manner on the ground surface in the vicinity of each pole location. BMPs would be implemented to minimize wind and water erosion as described in Section 4.4.6.11.

***Operation*.** Project operations would not require significant grading or alteration of topography. Any grading would primarily be associated with periodic maintenance of the clean-out of the site infiltration basins. These activities would occur as necessary, and it is expected that they would involve minimal grading and thus result in a less than significant impact. No grading would be required during operation of the off-site transmission line.

5.2.3.2.7 Criteria 7: Would the project be located on expansive soil, as defined in table 18-1-b of the uniform building code (1994), creating substantial risks to life or property?

The Terracon Geotechnical Report indicates that Project area soils exhibit low expansive potential. Additionally, Project structures would be constructed in accordance with the recommendations in the geotechnical report and CBC requirements; therefore, expansive soils would not be expected to adversely impact the Project facility site or off-site transmission line during construction or operation, or result in significant risks to life and property.

5.2.3.2.8 Indirect Impacts. No indirect geotechnical hazard-related impacts are expected associated with the proposed project.

5.2.4 Cumulative Impacts

As described in previous sections, impacts related to geotechnical hazards would be mitigated to less than significant levels via final Project design and compliance with applicable building codes, as well as implementation of Mitigation Measure 5.2-1 which requires implementation of the recommendations in the Terracon Geotechnical Report (refer to Appendix B). The proposed Project would not result in an incremental increase in geotechnical hazards to other projects, and when combined with the impacts of the other potential cumulative projects listed in Section 4.6, the proposed Project would not have a contributing or cumulative effect. Additionally, the other potential projects would be required to comply with seismic standards consistent with applicable local, state, and federal regulations, such as the CBC. Consequently, the contribution of the Project would not be cumulatively considerable, and thus, would be less than significant.

5.2.5 Mitigation Measures

Potential impacts related to geotechnical hazards would be mitigated to an insignificant level through compliance with applicable codes, standards, and ordinances, as well as via implementation of the recommendations in the geotechnical engineering report for the Project. The conclusions and recommendations in the Geotechnical Engineering Report for the Project (Appendix B of this EIR) include the following subject to final engineering design and approval by LACDPW:

- Site Soils: The surface soils generally consist of silty sand and clayey sand soils. The majority of the on-site soils are expected to be suitable for use as engineered fill beneath foundations, pavements, and in all other areas of the site.
- Foundations: The solar panel support units at the site may be ground mounted bearing on approved undisturbed soils. The building and related structural elements at the site may be supported by shallow spread footings or mat foundations bearing on approved undisturbed soils. Pole mounted equipment may be supported by drilled shaft foundations.
- Floor Slabs: Construction of floor slabs directly on compacted fills composed of on-site soils or approved imported soils are considered acceptable for the project.
- Pavement Sections: Automobile Parking Areas – 3-inch Asphalt Concrete(AC) over 4-inch Aggregate Base Course (ABC) or 5-inch Portland Cement Concrete (PCC) over 4-inch ABC; Main Drives and Truck Parking Areas – 3-inch AC over 6-inch ABC or 6-inch PCC over 4-inch ABC.
- Earthwork: Earthwork on the project shall be observed and evaluated by a licensed engineer practicing in the field of geotechnical engineering. The evaluation of earthwork

should include observation and testing of engineered fill, subgrade preparation, foundation bearing soils, and other geotechnical conditions exposed during construction.

The geotechnical hazard-related recommendations are subject to final engineering design and approval by LACDPW, including the solar array design(s) selected (e.g., trackers, fixed tilt) and associated foundation types (e.g., concrete ballast or pile/pier foundations). Details of the recommendations are presented in Sections 5.2 through 5.7 of the Geotechnical Engineering Report (Appendix B of this EIR).

Mitigation Measure 5.2-1: Implementation of Geotechnical Engineering Report Recommendations. The design and construction of the Project shall comply with applicable building codes and standards (e.g., CBC) as well as the recommendations in the geotechnical engineering report (Terracon 2009) to the satisfaction of the Los Angeles County Department of Public Works.

5.2.6 Level of Significance after Mitigation

Project structures would be designed and constructed using the recommendations and site-specific design parameters as specified in the geotechnical report (Terracon 2009), and in conformance with the appropriate CBC criteria and applicable industry standards. It is expected that these design and construction measures as implemented in accordance with Mitigation Measure 5.2-1 would reduce the potential impacts associated with geotechnical hazards to a less than significant level.

5.2.7 References

California Building Code (CBC). 2007. California Building Standards Commission.

Kern County Planning Department (KCPD). 2004. General Plan, Safety Element Chapter 4 (amended 2007).

Los Angeles County Department of Regional Planning (LACDRP). 1990. General Plan (currently undergoing update). Safety Element. Plates 1 through 5.

1986. Antelope Valley Areawide General Plan, a component of the Los Angeles County General Plan. Produced December 4, 1986, amended through May 5, 1994.

Terracon. 2009. Geotechnical Engineering Report, Antelope Valley Solar Ranch 1, Project No. 60085038. August.

URS Corporation (URS). 2009. Groundwater Characteristics at the AV Solar Ranch One Site, Southwestern Antelope Valley, Los Angeles County, California. November.

U.S. Department of Agriculture, National Resources Conservation Service, Soil Survey Geographic (USDA-NRCS SSURGO). 2007. Soil Database for Antelope Valley Area, California.

TABLE 5.2-1
CHARACTERISTICS AND ESTIMATED EARTHQUAKES FOR REGIONAL FAULTS[1]

Fault Name	Approximate Distance to Project Area (Miles)	Fault Class[2]	Maximum Credible Earthquake (MCE) Magnitude
San Andreas – 1857 Rupture	6.1	A	7.8
Garlock (West)	16.0	A	7.1
San Gabriel	21.0	B	7.1
Sierra Madre (San Fernando)	23.0	B	6.7
Holser	25.0	B	6.5
Santa Susana	25.1	B	6.6
Pleito Thrust	25.7	B	7.2
Sierra Madre	26.8	B	7.0
Verdugo	28.6	B	6.7
San Cayetano	28.6	B	6.8
White Wolf	28.7	B	7.2
Northridge (East Oak Ridge)	29.5	B	6.9

1 Source: Terracon 2009.

2 Class A faults = slip rate > 5mm/yr and 100% moment of characteristic; Class B faults = all other faults and $^2/_3$ moment of characteristic.

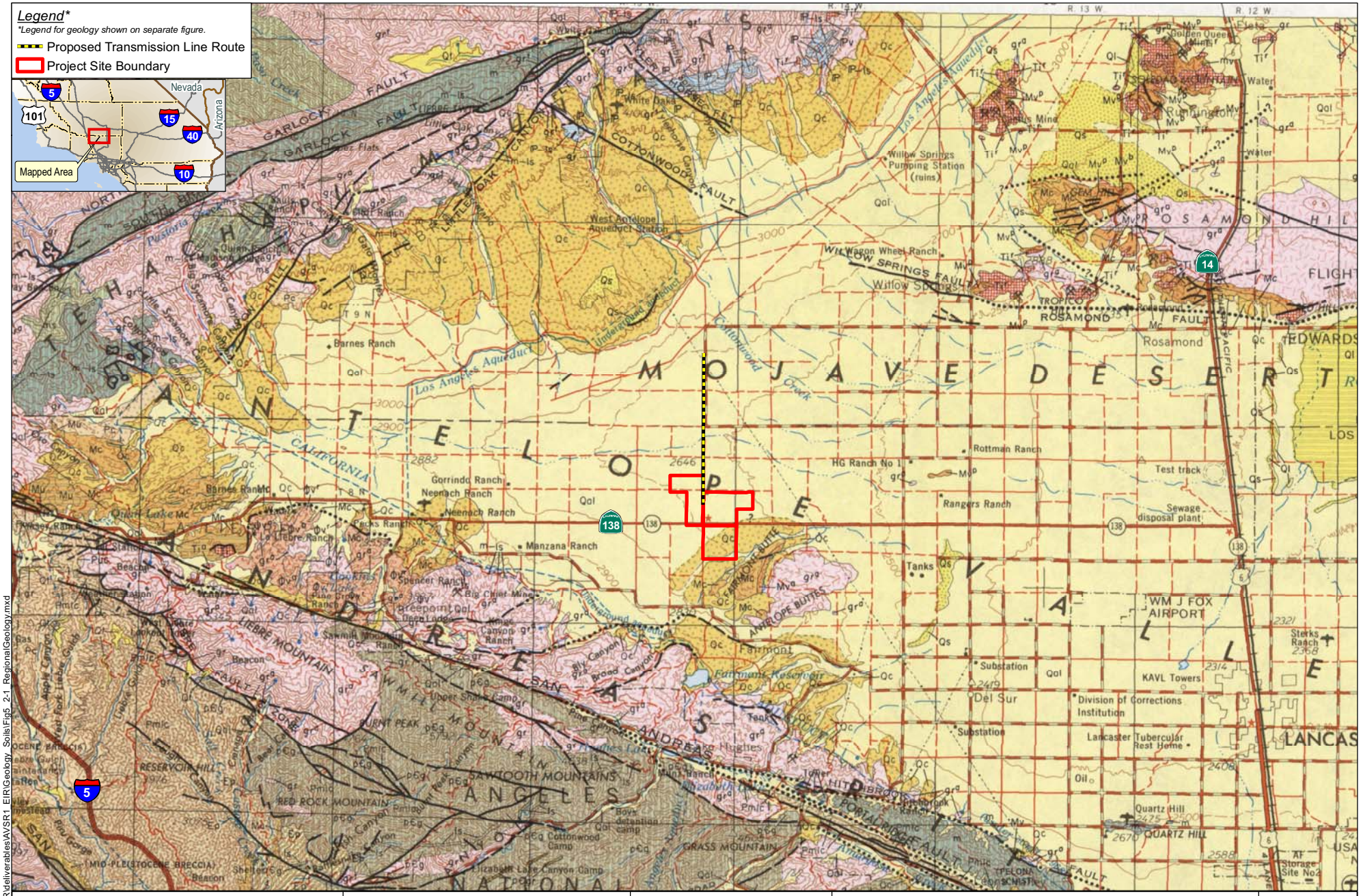
TABLE 5.2-2
SUMMARY OF SOIL SERIES CHARACTERISTICS[1]

Soil Series or Association	General Description	Water Erosion Susceptibility ("K" Factor)[1,2]	Wind Erosion Susceptibility (WEG Class)[1,3]	Risk of Corrosion	
				Uncoated Steel	Concrete
Greenfield	Sandy loam	Moderate (0.28)	Moderate (3)	Low	Low
Hanford	Coarse sandy loam, fine sandy loam, sandy loam	Moderate (0.28)	Moderate (3)	Low	Low

1 Source for soils mapping and characteristics: SSURGO, Antelope Valley Area, California, GIS.

2 Qualitative water erosion susceptibility based on "K" factors, where: low <0.2; moderate = 0.2 – 0.39; high $\geq$ 0.4.

3 Qualitative wind erosion susceptibility based on Wind Erodibility Group (WEG) classifications, where: high = 1-2; moderate= 3-4; low = 5-8.



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1:250,000

0 1 2 3 4 5 Miles

Source:
[1] Geology Sources: CGS Geologic Map Sheets 1:250,000 - Los Angeles.

AV Solar Ranch One EIR

Figure 5.2-1. REGIONAL GEOLOGY

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EXPLANATION

SEDIMENTARY AND METASEDIMENTARY ROCKS

CENOZOIC

QUATERNARY

Recent

- Qs — Dune sand
- Qal — Alluvium
- Qsc — Stream channel deposits (GREAT VALLEY)
- Qf — Fan deposits (GREAT VALLEY)
- Qb — Basin deposits (GREAT VALLEY)
- Qsl — Salt deposits
- Ql — Quaternary lake deposits
- Qg — Glacial deposits
- Qt — Quaternary nonmarine terrace deposits

Pleistocene

- Qm — Pleistocene marine and marine terrace deposits
- Qc — Pleistocene nonmarine
- QP — Plio-Pleistocene nonmarine

TERTIARY

Pliocene

- Pc — Undivided Pliocene nonmarine
- Puc — Upper Pliocene nonmarine
- Pu — Upper Pliocene marine
- Pmic — Middle and/or lower Pliocene nonmarine
- Pml — Middle and/or lower Pliocene marine

Miocene

- Mc — Undivided Miocene nonmarine
- Muc — Upper Miocene nonmarine
- Mu — Upper Miocene marine
- Mmc — Middle Miocene nonmarine
- Mm — Middle Miocene marine
- Ml — Lower Miocene marine

IGNEOUS AND META-IGNEOUS ROCKS

- Qrv — Recent volcanic: Q_{rv}^{r} —rhyolite; Q_{rv}^{a} —andesite; Q_{rv}^{b} —basalt; Q_{rv}^{p} —pyroclastic rocks
- Qpv — Pleistocene volcanic: Q_{pv}^{r} —rhyolite; Q_{pv}^{a} —andesite; Q_{pv}^{b} —basalt; Q_{pv}^{p} —pyroclastic rocks
- Quaternary and/or Pliocene cinder cones
- Pv — Pliocene volcanic: P_{v}^{r} —rhyolite; P_{v}^{a} —andesite; P_{v}^{b} —basalt; P_{v}^{p} —pyroclastic rocks
- Mv — Miocene volcanic: M_{v}^{r} —rhyolite; M_{v}^{a} —andesite; M_{v}^{b} —basalt; M_{v}^{p} —pyroclastic rocks

CENOZOIC

TERTIARY

Oligocene

- Φc — Oligocene nonmarine
- Φ — Oligocene marine

Eocene

- Ec — Eocene nonmarine
- E — Eocene marine

Paleocene

- Epc — Paleocene nonmarine
- Ep — Paleocene marine

Undivided

- QTc — Cenozoic nonmarine
- Tc — Tertiary nonmarine
- Tl — Tertiary lake deposits
- Tm — Tertiary marine

- Φv — Oligocene volcanic: Φv^{r}—rhyolite; Φv^{a}—andesite; Φv^{b}—basalt; Φv^{p}—pyroclastic rocks
- Ev — Eocene volcanic: E_{v}^{r} —rhyolite; E_{v}^{a}—andesite; E_{v}^{b} —basalt; E_{v}^{p}—pyroclastic rocks
- QTv — Cenozoic volcanic: QT_{v}^{r}—rhyolite; QT_{v}^{a}—andesite; QT_{v}^{b} —basalt; QT_{v}^{p} —pyroclastic rocks
- Ti — Tertiary intrusive (hypabyssal) rocks: T_{i}^{r}—rhyolite; T_{i}^{a}—andesite; T_{i}^{b}—basalt
- Tv — Tertiary volcanic: T_{v}^{r} —rhyolite; T_{v}^{a}—andesite; T_{v}^{b} —basalt; T_{v}^{p}—pyroclastic rocks

MESOZOIC

CRETACEOUS

- K — Undivided Cretaceous marine
- Ku — Upper Cretaceous marine
- Kl — Lower Cretaceous marine

JURASSIC

- JK — Knoxville Formation
- Ju — Upper Jurassic marine
- Jml — Middle and/or Lower Jurassic marine

TRIASSIC

- Tr — Triassic marine

UNDIVIDED

- m / ls — Pre-Cretaceous metamorphic rocks (ls = limestone or dolomite)
- ms — Pre-Cretaceous metasedimentary rocks
- P / ls — Paleozoic marine (ls = limestone or dolomite)

PERMIAN

- Pr — Permian marine

CARBONIFEROUS

- C — Undivided Carboniferous marine
- CP — Pennsylvanian marine
- CM — Mississippian marine

PALEOZOIC

DEVONIAN

- D — Devonian marine

SILURIAN

- S — Silurian marine

ORDOVICIAN

- pSs — Pre-Silurian meta-sedimentary rocks
- pS — Pre-Silurian metamorphic rocks
- pSv — Pre-Silurian metavolcanic rocks
- O — Ordovician marine

CAMBRIAN

- Є — Cambrian marine
- Є? — Cambrian – Precambrian marine

PRECAMBRIAN

- pЄ — Undivided Precambrian metamorphic rocks (pЄg = gneiss, pЄs = schist)
- lpЄ — Later Precambrian sedimentary and metamorphic rocks
- epЄ — Earlier Precambrian metamorphic rocks

- Franciscan Formation (KJf)
  - KJfv — Franciscan volcanic and metavolcanic rocks
  - gr — Mesozoic granitic rocks: gr^{q}-granite and adamellite; gr^{g}-granodiorite; gr^{t}-tonalite and diorite
  - bi — Mesozoic basic intrusive rocks
  - ub — Mesozoic ultrabasic intrusive rocks
  - JTrv — Jura-Trias metavolcanic rocks
- mv — Pre-Cretaceous metavolcanic rocks
- gr-m — Pre-Cenozoic granitic and metamorphic rocks
- Pv — Paleozoic metavolcanic rocks
- Pr — Permian metavolcanic rocks
- Cv — Carboniferous metavolcanic rocks
- Dv — Devonian metavolcanic rocks
- Dv? — Devonian and pre-Devonian? metavolcanic rocks
- pCc — Precambrian igneous and metamorphic rock complex
- pCgr — Undivided Precambrian granitic rocks
- pCan — Precambrian anorthosite

HEAVY BORDER ON BOXES INDICATES UNITS THAT APPEAR ON THIS SHEET

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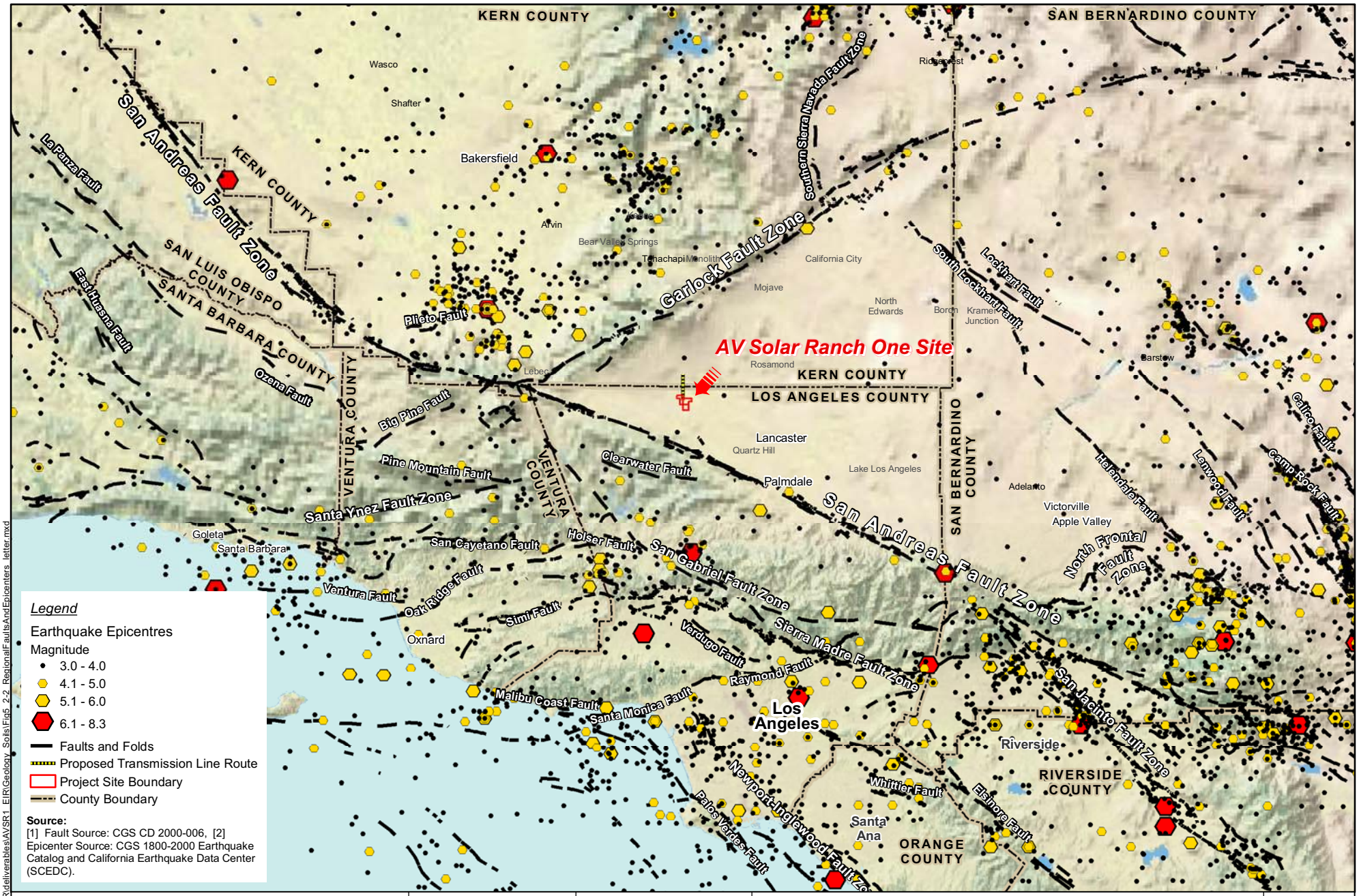
Image Source: Geology Sources: CGS Geologic Map Sheets 1:250,000 - Los Angeles.	**AV Solar Ranch One EIR**	**Figure 5.2-1.** REGIONAL GEOLOGY LEGEND	2010


KERN COUNTY
SAN BERNARDINO COUNTY
Wasco
Shafter
Bakersfield
Ridgecrest
San Andreas Fault Zone
La Panza Fault
KERN COUNTY
Southern Sierra Nevada Fault Zone
Arvin
Bear Valley Springs
Tehachapi
Monolith
California City
Garlock Fault Zone
Mojave
South Lockhart Fault
Lockhart Fault
North Edwards
Boron
Kramer Junction
SAN LUIS OBISPO COUNTY
SANTA BARBARA COUNTY
East Huasna Fault
Plieto Fault
AV Solar Ranch One Site
Rosamond
Lebec
KERN COUNTY
LOS ANGELES COUNTY
Barstow
Ozena Fault
VENTURA COUNTY
Big Pine Fault
Lancaster
Quartz Hill
Galico Fault
Pine Mountain Fault
Clearwater Fault
Lake Los Angeles
Palmdale
Hesperia Fault
Lenwood Fault
Camp Rock Fault
Adelanto
Victorville
Apple Valley
Santa Ynez Fault Zone
Goleta
Santa Barbara
San Cayetano Fault
Holser Fault
San Gabriel Fault Zone
San Andreas Fault Zone
North Frontal Fault Zone
Ventura Fault
Oak Ridge Fault
Simi Fault
Oxnard
Verdugo Fault
Sierra Madre Fault Zone
Raymond Fault
San Jacinto Fault Zone
Malibu Coast Fault
Santa Monica Fault
Los Angeles
Riverside
Newport-Inglewood Fault Zone
Whittier Fault
RIVERSIDE COUNTY
Elsinore Fault
Palos Verdes Fault
Santa Ana
ORANGE COUNTY
Legend
Earthquake Epicentres
Magnitude
3.0 - 4.0
4.1 - 5.0
5.1 - 6.0
6.1 - 8.3
Faults and Folds
Proposed Transmission Line Route
Project Site Boundary
County Boundary
Source:
[1] Fault Source: CGS CD 2000-006, [2] Epicenter Source: CGS 1800-2000 Earthquake Catalog and California Earthquake Data Center (SCEDC).
N
1:1,400,000
0 10 20 30 40 50 Miles
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US National Park Service
NPS_Physical_World_2D.
AV Solar Ranch One EIR
Figure 5.2-2. REGIONAL FAULT AND EPICENTER MAP
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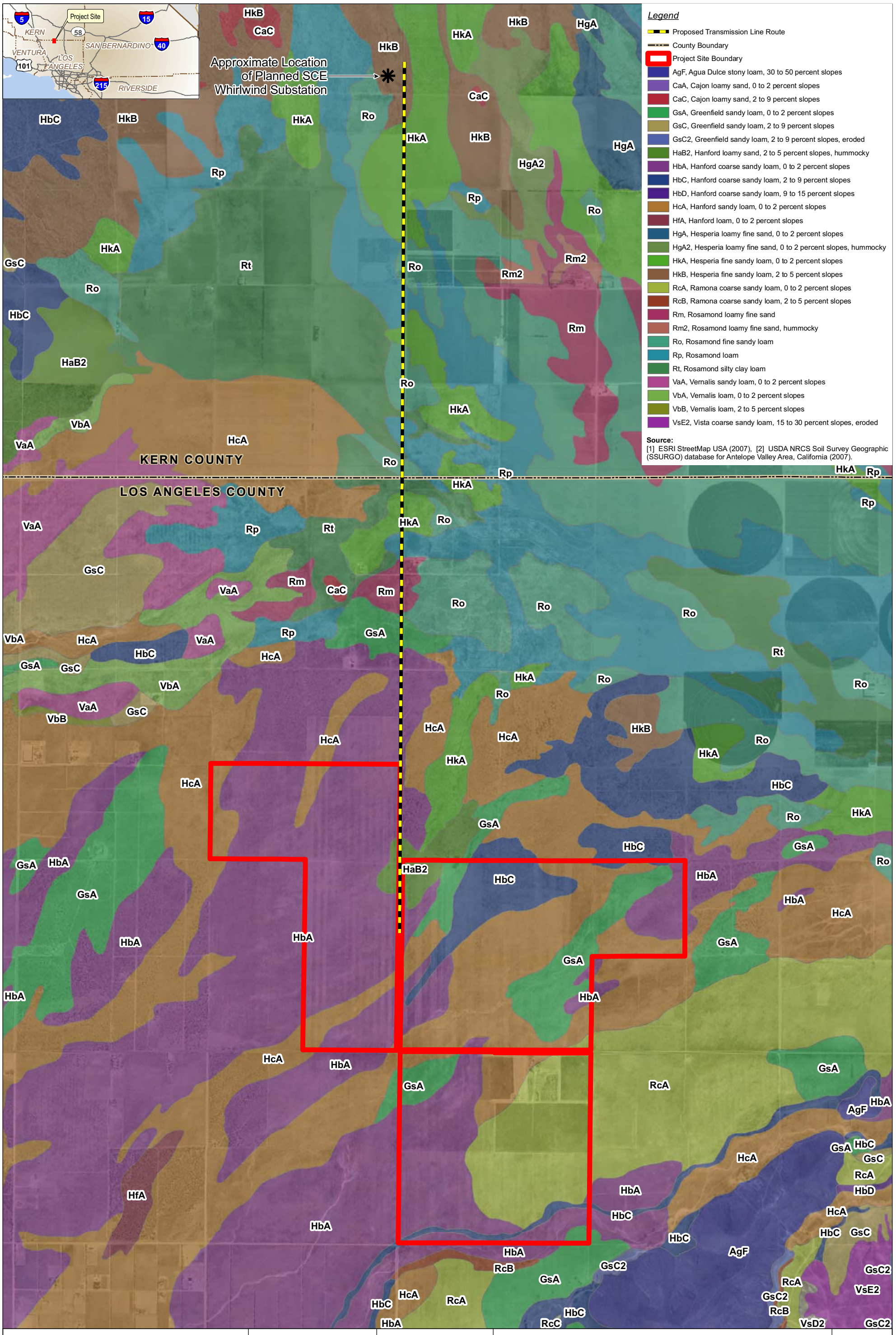

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1 inch = 2,400 feet

Image Source:
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AV Solar Ranch One EIR

Figure 5.2-3. SOILS MAP

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SECTION 5.0
ENVIRONMENTAL IMPACT ANALYSIS

5.1 INTRODUCTION AND IMPACTS FOUND TO BE LESS THAN SIGNIFICANT

5.1.1 Introduction

Sections 5.2 through 5.18 of this Draft EIR present analyses (by environmental impact category) of the potential environmental effects that could result from implementation of the proposed AV Solar Ranch One Project (Project). This section also presents mitigation measures, where appropriate, to avoid or minimize potential environmental effects associated with the Project. The environmental topics (or impact categories) analyzed in detail in this EIR are:

- 5.2 – Geotechnical Hazards
- 5.3 – Flood Hazards
- 5.4 – Fire Hazards
- 5.5 – Water Quality
- 5.6 – Air Quality
- 5.7 – Biological Resources
- 5.8 – Cultural and Paleontological Resources
- 5.9 – Agricultural Resources
- 5.10 – Visual Qualities
- 5.11 – Traffic and Access
- 5.12 – Fire Protection Services
- 5.13 – Sheriff Services
- 5.14 – Utility Services
- 5.15 – Environmental Safety
- 5.16 – Land Use
- 5.17 – Global Climate Change
- 5.18 – Noise

Each environmental topic section analyzed in this EIR is organized in the following manner: regulatory setting, environmental setting, project impacts, cumulative impacts, mitigation

measures, and the expected level of significance after mitigation is applied. The methodology and threshold criteria that were used to determine impact significance are also specified for each environmental impact category.

5.1.2 Impacts Found to be Less Than Significant

In addition to the environmental topics analyzed in detail in this EIR, the County of Los Angeles has determined through the preparation of an Initial Study (dated April 13, 2009) that the development and operation of the proposed Project would not result in potentially significant impacts to the environmental concerns listed below. Therefore, no further review of these issues is necessary. Refer to Section 7.3 for a summary of significant unavoidable impacts, as applicable.

The following discussions of the pertinent Initial Study impacts and are provided in accordance with CEQA Guidelines Section 15128, which states: "An EIR shall contain a statement briefly indicating the reasons that various possible significant effects of a project were determined not to be significant and were therefore not discussed in detail in the EIR."

5.1.2.1 Mineral Resources

Economically recoverable mineral resources are not known to exist on the Project site. The CEQA Initial Study determined the proposed Project does not have the potential to result in the loss of availability of a known mineral resource of value to the region and residents of the state. Additionally, the Initial Study determined that the Project does not have the potential to result in the loss of availability of a locally important mineral resources discovery site delineated in a local general plan, specific plan, or other land use plan.

5.1.2.2 Sewage Disposal

The CEQA Initial Study determined the proposed Project is not in an area served by a community sewage system and thus would not create a capacity problem in sewer lines or at a treatment plant. The Project's sanitary disposal needs would be met with a new, on-site septic system designed and built to County standards.

5.1.2.3 Education

The proposed Project does not involve residential development. The CEQA Initial Study determined the proposed Project does not have the potential to create capacity problems at the school district level or at individual schools, and that the Project would not create student transportation problems. Additionally, it was determined that the Project would not result in substantial library impacts due to increased population and demand by the Project operational workforce of only approximately 16 persons.

5.1.2.4 Recreation

The proposed Project does not involve residential development and would not create new demand for recreational resources in the Project region. The CEQA Initial Study determined the proposed Project does not have the potential to require new or expanded recreational facilities for future residents since the Project is intended to generate renewable, solar energy with a long-term operational workforce of only approximately 16 persons.

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5.18 NOISE

The Los Angeles County Department of Regional Planning determined that the AV Solar Ranch One Project (Project) has the potential to cause significant impacts related to noise. The following analysis of noise includes a description of the regulatory setting, existing noise conditions, noise impact assessment methodology, impact significance criteria, anticipated Project impacts (direct and cumulative), mitigation measures, and the expected levels of significance after mitigation.

5.18.1 Regulatory Setting

This subsection describes the federal, state, and local policies and regulations related to noise exposure.

5.18.1.1 Federal

There are a number of laws and guidelines at the federal level that direct the consideration of a broad range of noise issues. Because the project does require discretionary approvals by federal agencies, the proposed Project is not directly subject to federal noise regulations other than the Occupational Safety and Health Administration (OSHA):

- OSHA Occupational Noise Exposure; Hearing Conservation Amendment (FR 48 (46), 9738–9785 (1983).

  The standard stipulates that protection against the effects of noise exposure shall be provided for employees when sound levels exceed 90 dBA over an 8-hour exposure period. Protection shall consist of feasible administrative or engineering controls. If such controls fail to reduce sound levels to within acceptable levels, personal protective equipment shall be provided and used to reduce exposure of the employee. Additionally, a Hearing Conservation Program must be instituted by the employers whenever employee noise exposure equals or exceeds the Action Level of an 8-hour time-weighted average (TWA) sound level of 85 dBA. The Hearing Conservation Program requirements consist of periodic area and personal noise monitoring, performance and evaluation of audiograms, provision of hearing protection, annual employee training, and record keeping.

The most relevant federal guidelines applicable to community noise exposure are those provided by the U.S. Environmental Protection Agency (EPA) in "Information of Levels on Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety." (EPA 550/9-74-004). It should be noted that this document does not constitute EPA regulations or standards, but rather, identifies safe levels of environmental noise exposure without consideration for achieving these levels or other potentially relevant

considerations. It is intended to "provide State and Local governments as well as the Federal Government and the private sector with an informational point of departure for the purpose of decision making." These guidelines are not adopted or recommended by the State of California or any local jurisdiction. The agency is careful to stress that the recommendations contain a factor of safety and do not consider technical or economic feasibility issues needed to implement these guidelines.

5.18.1.2 State

The California Department of Health Services (CDHS) has studied the correlation of noise levels and their effects on various land uses and has established guidelines for evaluating the compatibility of various land uses as a function of community noise exposure. The State of California requires that all municipalities prepare and adopt a comprehensive long-range General Plan. General Plans must contain a Noise Element (California Government Code Section 65302(f) and Section 46050.1 of the Health and Safety Code). The requirements for the Noise Element of the General Plan include describing the noise environment quantitatively using a cumulative noise metric such as Community Noise Equivalent Level (CNEL) or Day-Night Average Sound Level (DNL), establishing noise/land use compatibility criteria, and establishing programs for achieving and/or maintaining land use compatibility. Noise elements shall address all major noise sources in the community including mobile and stationary noise sources.

Table 5.18-1 presents general State of California guidelines for environmental noise levels and land use compatibility. These guidelines are used by many agencies, environmental planners, and acoustical specialists as a starting point to evaluate the potential for noise impact on and by the project and methods for achieving noise-compatibility with respect to the nearby existing uses.

Occupational exposure to noise is regulated by Cal-OSHA in Title 8, Group 15, Article 105, Sections 5095–5100. The standard stipulates that protection against the effects of noise exposure shall be provided when sound levels exceed 90 dBA over an 8-hour exposure period. Protection shall consist of feasible administrative or engineering controls. If such controls fail to reduce sound levels to within acceptable levels, personal protective equipment shall be provided and used to reduce exposure of the employee. Additionally, a Hearing Conservation Program must be instituted by the employers whenever employee noise exposure equals or exceeds the Action Level of an 8-hour time-weighted average (TWA) sound level of 85 dBA. The Hearing Conservation Program requirements consist of periodic area and personal noise monitoring, performance and evaluation of audiograms, provision of hearing protection, annual employee training, and record keeping.

The California Environmental Quality Act (CEQA) (California Public Resources Code section 21000 et seq.) requires identification of "significant" environmental impacts and their feasible mitigation. Section XI of Appendix G of CEQA Guidelines (Cal. Code Regs., Title 14, App. G) lists some indicators of potentially significant impacts that include the following:

a. Exposure of persons to or generation of noise levels in excess of standards established in the local General Plan or noise ordinance, or applicable standards of other agencies

b. Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels

c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the Project

d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the Project

e. For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, the Project exposes people residing or working in the project area to excessive noise level

f. For a project within the vicinity of a private airstrip, the project exposes people residing or working in the project area to excessive noise levels

CEQA does not define a threshold of "significant increase" regarding noise exposure; however, based on human response and commonly applied industry standard, the following thresholds of significance will be applied to the proposed project as set forth by CEQA guidelines, a significant impact related to operational noise would result if:

- The project causes the ambient noise level measured at the property line of affected uses to increase by 3 dBA in CNEL to or within the "normally unacceptable" or "clearly unacceptable" noise/land use compatibility category; or
- The project causes any 5 dBA or greater noise increase.

5.18.1.3 Local

The proposed Project solar PV site is located in Los Angeles County. Portions of the proposed off-site 230-kV transmission line extend into the Willow Springs Specific Plan Area in Kern County. All noise-sensitive receptors potentially impacted by the proposed Project are located within unincorporated areas of Los Angeles and Kern counties.

Most jurisdictions have unique standards and guidelines regarding noise and nuisance. These are set out in county and municipal codes and General Plans. Each noise ordinance or noise element within a municipal/county code will address noise levels that create a nuisance to

surrounding communities. Noise ordinances and noise elements occasionally classify different areas within these communities based on zoning standards. Such zones can include residential areas (analyzed further based on the density of the population), industrial areas, commercial areas, agricultural areas and rural areas, among many more. The possible adverse effects of construction noise are included within the noise standards.

Ambient noise level, type of noise source, distance to the noise source, time of day, duration of the noise and zoning of the areas are variables considered when assessing the adverse effects of noise on noise-sensitive receptors. Virtually all municipal/county codes categorize noise by decibel levels that are A-weighted (dBA). Many standards will use a continuous noise equivalent level (L_{eq}) in order to express the sound levels over a given timeframe.

The Los Angeles County Noise Element (Chapter 7 of the Los Angeles County General Plan), Kern County Noise Element (Chapter 7 of the Kern County General Plan), and Willow Springs Specific Plan Area Noise Element are blueprints that contain goals and policies that guide the physical development of the unincorporated areas under each respective county's discretionary land use authority. The General Plan also influences the development of incorporated cities, state and federal lands within the counties that bear relation to the county's planning.

5.18.1.3.1 Los Angeles County. The Los Angeles County Noise Ordinance is designed to limit the exposure of the community to excessive noise levels by specifying noise standards at noise-sensitive receptors. Exterior noise guidelines are set forth in the Los Angeles County's Noise Element for noise-sensitive land use areas that include residential properties, commercial properties, industrial properties and other noise-sensitive areas where "quiet" is considered an essential part of the environment (examples include parks, hospitals, schools, churches). The Los Angeles County Noise Ordinance uses the Noise Element as a reference to define the local noise standards. These standards are in terms of L_{eq} at the nearest affected land use. The most restrictive standards are for residential land uses and other noise-sensitive areas. Table 5.18-2 presents the exterior noise standards in Los Angeles County for each different type of noise zone land use for noise-receiving properties.

The exterior noise levels found in the table are in terms of L_{50}, which means that the exterior noise level can not exceed the level found in Table 5.18-2 for more than 30 minutes per hour. As the noise levels increase, the maximum time of exposure allowed at that respective noise level decreases. The Los Angeles County Noise Ordinance refers to the levels found in Table 5.18-2 as "Standard No. 1." If Standard No. 1 is exceeded by an existing ambient noise level that is higher than the noise level limit, then the existing ambient level becomes the new standard. Standard No. 2 is the exterior noise level that can not be exceeded for more than 15 minutes in an hour. This noise level is known as the L_{25}. Five (5) dBA is added to each level found in Table 5.18-2 in order to adjust the given noise standard limit for the time of

exposure. Standard No. 3 is the exterior noise level that cannot be exceeded for more than 5 minutes in an hour. This noise level is known as the $L_{8.3}$. Ten (10) dBA is added to each level found in Table 5.18-2 in order to adjust the given noise standard limit for the time of exposure. Standard No. 4 is the exterior noise level that cannot be exceeded for more than 1 minute in an hour. This noise level is known as the $L_{1.7}$. Fifteen (15) dBA is added to each level found in Table 5.18-2 in order to adjust the given noise standard limit for the time of exposure. Standard No. 5 is the exterior noise level that cannot be exceeded at any period of time. This noise level is known as the L_{max}. Twenty (20) dBA is added to each level found Table 5.18-2 in order to adjust the given noise standard limit for the time of exposure. The Standards shown in Table 5.18-2 are applicable to Project operation.

The Los Angeles County's construction noise limits are defined at the exterior of residential structures (versus the property line for non-construction [i.e., operations] noise activities). Noise from construction is not allowed to cause a disturbance at the property line between the times of 7:00 p.m. and 7:00 a.m. during weekdays, and all day Sundays, and holidays. Furthermore, the Los Angeles County Noise Ordinance states that noise from stationary construction sources cannot exceed 50 dBA at the affected structure from 8:00 p.m. to 7:00 a.m. at single-family homes on weekdays, Sundays and holidays. The Los Angeles County Noise Ordinance delineates construction activity from mobile and stationary construction equipment. The construction noise level limitations from mobile construction equipment are defined in the Los Angeles County Noise Ordinance as "maximum noise levels for nonscheduled, intermittent, short-term operation (less than 10 days)," and the construction noise level limitations from stationary construction equipment are defined as "maximum noise levels for repetitively scheduled and relatively long-term operation (periods of 10 days or more)." Table 5.18-3 represents the noise standards for mobile construction equipment and Table 5.18-4 represents the noise standards for stationary construction equipment at single-family, multi-family and semi-residential areas as well as commercial areas. All relevant noise standards are subject to the noise levels found at the property line. All internal-combustion-engine powered equipment "shall be equipped with suitable exhaust and air-intake silencers in proper working order." A 5 dBA penalty is applied to noises that are considered impact noises.

5.18.1.3.2 Antelope Valley Area Wide General Plan. The Antelope Valley Area Wide General Plan designates areas within the 60 dBA noise contour from transportation sources such as airports, railroads, and major highways as Noise Management Areas. Plan policy for these areas call for the reduction of noise impacts on adjacent land uses through both hazard avoidance actions, where practical, and hazard mitigation practices in other cases.

The Antelope Valley Area Wide General Plan is currently in the process of being updated. However, no updated guidelines or standards related to noise are available.

5.18.1.3.3 Kern County General Plan. The Noise Element of the Kern County General Plan is designed to limit the exposure of the community to excessive noise levels by specifying noise guidelines at noise-sensitive receptors. In the Noise Element of Kern County, exterior noise guidelines are established for noise-sensitive land use areas. These standards are defined in terms of L_{eq} at the nearest affected land use. The most restrictive standards are for residential land uses. Table 5.18-5A represents the noise standards in Kern County for stationary noise sources. Within Kern County both construction noise and project operational noise are considered noise from stationary noise. Construction noise is temporary in nature while project operational noise is not.

Kern County's Noise Element states that residential areas have no more than an L_{eq} of 55 dBA for 30 minutes during any hour (L_{50}) throughout daytime hours (7:00 a.m. to 10:00 p.m.) and no more than an L_{eq} of 50 dBA for 30 minutes during any hour (L_{50}) throughout nighttime hours (10:00 p.m. to 7:00 a.m. of the following day). The maximum time of exposure for increasing noise levels is shown in Table 5.18-5A. Construction noise is exempt from 6:00 a.m. to 9:00 p.m. Monday through Friday and from 8:00 a.m. to 9:00 p.m. on Saturdays and Sundays. Impact noise or noise that consists of a single tone reduces the standard for both daytime and nighttime L_{eq} levels by 5 dBA.

5.18.1.3.4 Willow Springs Specific Plan. The Willow Springs Specific Plan Noise Element is intended to supplement the Kern County General Plan Noise Element, adopts the Kern County Noise Element implementation measures by reference. Additionally, the Specific Plan considers potential future noise conflicts between sensitive land uses, and uses associated with commercial and industrial projects. The Willow Springs Specific Plan Noise Element identifies noise standards that are established as the maximum allowable ambient noise levels with respect to the sensitivity level of the noise receptor (refer to Table 5.15-5B). Attenuation measures shall be required of all new commercial, industrial, and residential development where noise levels exceed adopted standards.

5.18.2 Environmental Setting

5.18.2.1 Project Site

The proposed Project site is located in the Antelope Valley, in unincorporated Los Angeles County, approximately 15 miles northwest of downtown Lancaster. The property consists of approximately 2,100 acres, and is located within Sections 11, 13, 14, and 24 in Township 8 North, Range 15 West, and within Section 18 in Township 8 North, Range 14 West (San Bernardino Base and Meridian). This site occupies an area both north and south of SR-138, and is approximately bounded on the north by West Avenue B-8, on the south by West Avenue E, on the east by 155th Street West and on the west by 180th Street West. Most of the Project site is undeveloped or has been used for agricultural production since at least the

1950s, and includes a residential ranch area that will be removed as part of the solar field construction. The Project site is located in an area with suitable solar radiation characteristics, flat terrain, and close proximity to existing electrical transmission facilities.

The area surrounding the Project site is similar to the site itself and generally consists of agricultural or undeveloped land with occasional residential or farm-related structures. Fairmont Butte is near the southeast corner of the property, and the Antelope Valley Poppy Reserve (Poppy Reserve) is located approximately 1.5 miles to the southeast. Santa Monica Mountains Conservancy land is located approximately 0.5 to 1 mile to the southeast, and includes a portion of Fairmont Butte. Arthur B. Ripley Desert Woodland State Park is located approximately 2.5 miles to the southwest, and SEA #60 is adjacent to the Project on the north and east. The Fairmont-Antelope Butte SEA #57 is located approximately 850 feet to the southeast of the Project property. Refer to Figure 5.18-1 for the proposed Project site and vicinity.

5.18.2.2 On-site/Off-site Transmission Line Route

The proposed 230-kV transmission line consists of an approximately 3.5-mile-long off-site segment and a 0.75-mile-long on-site segment. The total transmission line length is approximately 4.25 miles, and is proposed to run within or near the public ROW of 170th Street West to interconnect to Southern California Edison's (SCE) planned Whirlwind Substation north of the Project site in southern Kern County. The proposed transmission line route is shown in detail on Figures 4.3-4A and 4.3-4B in Section 4.0 (Project Description). The portion of the proposed transmission line route in Kern County is proposed to be constructed within, or on private lands adjacent to, the public road ROW of 170th Street West. An expanded study area is designated along portions of the route in Kern County to accommodate final siting of the route. The location of the transmission line route within the expanded study area is covered in the noise assessment presented herein.

5.18.3 Project Impacts

5.18.3.1 Methodology and Significance Criteria

Tables 5.18-6 and 5.18-7 summarize the applicable significance criteria for assessing noise exposure in the Project study area. These tables categorize noise exposure criteria by jurisdiction for Project operation and construction.

5.18.3.2 Impact Analysis

5.18.3.2.1 Criteria 1: Is the project site located near a high noise source (airports, railroads, freeways, industry)?

The Project site is located in a rural area that encompasses both Los Angeles County and Kern County and is not located near an airport, railroad, freeway, or industrial facility. The Project site is traversed by SR-138, which is a 2-lane State highway. The proposed Project is not a noise-sensitive use. The proposed Project would not expose people residing or working in the Project area to excessive long-term noise levels regardless of the Project location with respect to SR-138. Therefore, impacts would be less than significant.

5.18.3.2.2 Criteria 2: Is the proposed use considered sensitive (school, hospital, senior citizen facility) or are there other sensitive uses in close proximity?

The proposed Project is a solar PV electrical generating facility and, as such, is not a noise-sensitive use. There are eight noise-sensitive receptors in relatively close proximity to the Project site and off-site transmission lines. All eight of the noise-sensitive receptors are single-family residences. Six of the noise-sensitive receptors are located in Los Angeles County and two of the noise-sensitive receptors are located in Kern County near the proposed transmission line. Distances from the nearest project boundary, center of the solar array field, and transmission line are listed in Table 5.18-8 and depicted on Figure 5.18-2. As shown in Table 5.18-8, the closest residence (R-1) to the Project site is located approximately 2,000 feet away. With implementation of Mitigation Measure 5.18-1 (refer to Section 5.18-5), no significant Project noise impacts would be expected to result, including consideration of sensitive receptors. Refer to Sections 5.18.3.2.3 and 5.18.3.2.4 for more information.

5.18.3.2.3 Criteria 3: Could the project substantially increase ambient noise levels including those associated with special equipment (such as amplified sound systems) or parking areas associated with the project?

Construction.

Facility Site. Construction of the Project is scheduled to begin in the fourth quarter of 2010 and be completed in the fourth quarter of 2013. The overall construction period is expected to be approximately 38 months. The rate of construction activity during this period will vary. The rate of solar field construction is expected to be 8–10 MW of installed capacity per month. Two basic construction scenarios for the solar arrays are proposed: 1) pile foundations; and 2) concrete ballast foundations. The driven pile foundations scenario represents the worse case for assessment of Project noise impacts during construction. Vibration impacts on the surrounding noise sensitive receivers from the pile drivers are also assessed.

Construction hours will comply with applicable local ordinances. For Los Angeles County, noise from construction is not allowed to cause a disturbance between the times of 7:00 p.m. and 7:00 a.m. during weekdays, and all day Sundays, and holidays. Furthermore, the Los Angeles County Noise Ordinance states that noise from construction cannot exceed 50 dBA at the affected structure from 8:00 p.m. to 7:00 a.m. at single-family homes on weekdays, Sundays and holidays. Construction noise is exempt from 6:00 a.m. to 9:00 p.m. on weekdays and 8:00 a.m. and 9:00 p.m. on Saturdays and Sundays within Kern County. It is anticipated that construction will generally occur between 7:00 a.m. and 5:00 p.m., Monday through Friday, but some construction may be completed outside of these hours. Additional hours may be necessary to make up schedule deficiencies, or to complete critical construction activities.

A database of common construction activities and noise levels is available in the Federal Highway Administration's (FHWA) Roadway Construction Noise Model (RCNM) User's Guide (FHWA RCNM, Version 1.0 User's Guide). These data were obtained from empirical measurements at major construction projects and are considered to be the best data available for assessing noise from construction activities. Source noise levels from this database were used for this analysis. Additional data for noise sources not available in this database were collected at sites of similar construction activity. A key component not included in the FHWA database and expected to be used during construction of the Project is the hydraulic vibratory pile driver. This equipment would be used to install the pile foundations for the fixed-tilt solar panels (if selected instead of trackers, which utilize concrete ballast foundations).

Major construction components include: 1) Project substation (10 months); 2) O&M facilities (9 months); 3) Drainage A cutoff wall (4 months); 4) solar field areas (30–31months); and 5) on-site/off-site 230-kV transmission line (4 months). Noise levels and potential impacts from each of these component activities were evaluated.

***Project Substation and O&M Building*.** The construction of the Project Substation and O&M building will take place over a period of approximately 10 months. Typical noise levels associated with the construction of a Project substation, O&M building and other similar structures are expected to be 89 dBA L_{eq} at a distance of 50 feet. The Project substation and O&M building are being constructed near the center of the proposed Project site. The nearest sensitive receiver is R-1 and is located approximately 8,700 feet from the Substation and O&M Building construction activity. Noise levels from the construction of the Substation and O&M Building are predicted to be 50 dBA at R-1. This noise level is below the noise level thresholds established by Los Angeles and Kern counties and noise associated with the construction of the Project Substation and O&M building would be less than significant.

A temporary concrete batch plant would be located in the vicinity of the Substation and O&M Building during the construction period if tracker units with concrete ballast foundations are used. Noise levels associated with construction and operation of the concrete batch plant are estimated to be similar to noise levels associated with construction of the Substation and O&M Building and would be less than significant.

Drainage A Cutoff Wall. An existing incised drainage channel located on-site has the potential to naturally meander during large storm events due to bank and bed erosion. The solar panel foundations have been set back more than 100 feet from the edge of the existing incised channel, however the potential still exists for the channel to meander beyond these limits. As a protective measure, a cutoff wall consisting of sheet piling may be installed along each side of the existing incised channel and would be set back approximately 100 feet from the channel banks. Installation of the sheet piling is the loudest activity associated with construction of the Drainage A Cutoff Wall.

The sheet piling material will be steel or PVC. Each sheet pile will be interlocking, and measure approximately 18 inches wide by 7/16 inch thick by 15 feet long. Sheet piling requires no excavation or grading work, and the top of the sheet pile will be installed at or slightly below existing grades. The depth of the sheet piling will be approximately 1.5 times the existing channel depth, which would result in a depth of about 15 feet. Final depths will be determined during detailed design when a detailed scour analysis will be prepared.

Noise levels associated with the installation of the sheet piles are expected to be approximately 95 dBA at a distance of 50 feet. The nearest noise sensitive receiver is R-3. The distance from the sheet pile installation to R-3 is approximately 10,300 feet. Noise levels at R-3 from the installation of the piles are estimated to be 49 dBA. This noise level is well below the noise level thresholds established by Los Angeles and Kern counties and noise associated with the construction of the Drainage A cutoff wall would be less than significant.

Solar Field. The construction of the solar field is projected to occur over a period of 30–31 months. The rate of construction is expected to be 8–10 MW of installed capacity per month. Installation of the solar field will occur over a very large area of the Project site. The nearest noise sensitive receiver to the solar field is R-1. R-1 is located approximately 2,000 feet from the closest proposed solar panel location.

Construction of the solar field would occur in 6 stages and includes pile installation (fixed-tilt option), installation of ballast foundations for tracker units (tracker option only), trenches for underground wiring and conduits, and installation of overhead 34.5-kV transmission lines for on-site electrical connections. Of these activities, pile driving associated with the fixed-tilt option is the loudest activity and noise levels from pile driving operations are used as the

basis for determining potential noise impacts from installation of the solar field. This represents a worst-case analysis for noise.

Construction of the solar field may encompass some nighttime work. No pile driving or earthwork will be conducted during nighttime hours. There will also be no heavy equipment utilized during nighttime hours. The following activities can be expected to periodically occur during nighttime construction, as applicable:

- PV module/tracker assembly (inside and outside the O&M/temporary assembly building areas)
- PV module installation in the field
- Electrical wiring installation
- Electrical system testing and interconnection to grid
- Dust control watering

These activities would not result in noise impacts at off-site sensitive receptors.

The fixed-tilt option for the solar field could require the installation of approximately 465,000 steel piles approximately 6 inches in diameter driven to a depth of approximately 10 feet. Due to the potential for noise impact from pile driving operations and the variety of pile driving options available various pile drivers were evaluated based on noise emissions. As the result of this evaluation, vertical hydraulic vibratory pile drivers were selected for use by the Applicant. The noise emissions for these drivers are significantly lower than noise emissions from other pile driving equipment. Typical pile driver noise is between 95–100 dBA at a distance of 50 feet.

Noise measurements specific to vertical hydraulic pile drivers were conducted to verify the noise emission data. Based on noise measurement data conducted during pile driving operations at a similar facility, noise levels for this class of equipment under operating conditions similar to the operating conditions expected during the construction of the proposed Project are 88 dBA at a distance of 50 feet from the front of the equipment and 81 dBA at a distance of 50 feet from the rear of the equipment. Noise levels at the rear of the equipment are shielded by the equipment itself.

Pile driving operations would generate ground-borne vibration. The Federal Transit Administration (FTA 2006) has established ground-borne vibration impact criteria for specific land use categories. The most stringent criterion for ground-borne vibration is at buildings where vibration would interfere with interior operations. If the vibration velocity level in decibels (VdB) exceeds 65 VdB at these locations, there would be an impact. Ground-borne vibration levels below 65 VdB are usually not perceptible. Vibration data was

not collected for the pile driver that is proposed for use during the construction and installation of the solar field equipment. Typical impact pile drivers generate vibration levels of 104 VdB at a distance of 25 feet. The vertical hydraulic pile driver that is proposed for Project use would generate lower levels of ground-borne vibration than a typical impact pile driver. Vibration levels from a typical impact pile driver would exceed the 65 VdB impact criterion level at any noise sensitive receiver within a distance of 500 feet. The closest noise sensitive receiver is 2,000 feet from the Project boundary. Therefore, impacts would be less than significant at noise sensitive receivers due to ground-borne vibration caused by the installation of the solar field equipment.

Potential Impact 5.18-1: Exceedance of Los Angeles County Noise Ordinance Standard during Construction due to Pile Driving.

Pile drivers are classified as impact device in the Los Angeles County Noise Ordinance and the applicable standard is therefore 55 dBA. Noise modeling analysis indicates that noise levels from pile driving operations at R-1 are predicted to be 61 dBA, which exceeds the 55-dBA standard and represents a potentially significant impact. Further analysis indicates that the minimum distance from pile driving operations to a noise sensitive receiver needed to comply with the 55 dBA standard is 3,000 feet. Pile driving operations conducted within 3,000 feet may exceed the 55-dBA standard and result in a significant noise impact. The 55-dBA maximum noise level is expected to be exceeded at sensitive receptors R-1, R-2, and R-3 (refer to Figure 5.18-2) without mitigation. Pile driving operations would be conducted over a large area and the majority of the proposed piles are located at distances beyond 3,000 feet. The average distance from the potential pile installation to the nearest noise sensitive receiver is approximately 2 miles (10,560 feet) and noise levels from pile driving operations will be approximately 47 dBA when attenuated over this distance.

With implementation of Mitigation Measure 5.18-1 (refer to Section 5.18.5, Mitigation Measures), the noise levels at sensitive receptors associated with pile driving would be reduced to less than significant.

Off-site Transmission Line. The proposed 230-kV transmission line consists of an approximately 3.5-mile-long off-site segment and a 0.75-mile-long on-site segment. The total transmission line length is approximately 4.25 miles, and is proposed to be located within, or on private lands adjacent to, the public ROW of 170th Street West to interconnect to SCE's planned Whirlwind Substation north of the Project site in southern Kern County.

Construction of the proposed 230-kV transmission line along or adjacent to the 170th Street West ROW is expected to take place over a period of 4 months, and is planned to occur in time to deliver first power from the Project in the third quarter of 2011. The centerline of the transmission line route would first be surveyed, with each pole location clearly staked. The

proposed transmission line is expected to require a total of approximately 46 tubular steel poles. The transmission line route and pole locations would be located approximately 5 feet inside of the road ROW, or on nearby private lands as described previously in Section 5.18.2.2.

Pole holes (including foundations) would typically be approximately 6 to 10 feet in diameter, 20 to 30 feet deep, and would be augured with a truck mounted pole auger/pressure digger with rock teeth. Once the hole is complete, poles would be set in poured concrete foundations within the holes. Structures and conductor support hardware would be assembled at each pole location to minimize damage during transport.

Construction of the transmission line would require a laydown area at each pole location for use as temporary laydown or as a staging area for equipment, poles, and hardware. The typical laydown area at each pole location is expected to be approximately 100 feet in length by 50 feet in width. It is expected that the equipment shown in Table 5.18-9 would be used for construction of the 230-kV transmission line.

The construction equipment associated with the construction of the 230-kV overhead transmission line is considered mobile construction equipment and is subject to different noise standards in Los Angeles County than the noise standards used for the stationary construction standards applicable to construction of the solar farm. For mobile construction equipment, the Los Angeles County Noise Ordinance states that noise levels cannot exceed 75 dBA at single-family residences between the hours of 7:00 a.m. and 8:00 p.m. on weekdays. This standard is applicable to noise sensitive receivers located in Los Angeles County. These include R-1, R-2, R-3, R-4, R-5, and R-8. Sensitive receivers R-6 and R-7 are located in Kern County. Construction noise occurring between 6:00 a.m. to 9:00 p.m. during weekdays is exempt from noise regulation in Kern County.

The predominant noise source associated with the construction of the transmission line is the corner-mount pole hole auger/pressure digger. This equipment is expected to generate noise levels of 84 dBA at a distance of 50 feet. R-6 and R-7 are the only noise-sensitive receptors that would potentially receive noise levels higher than 75 dBA during construction. R-6 and R-7 are located in Kern County and construction noise at these locations is not subject to regulation. However, transmission line construction activities would only occur for about 2 days at any one location; thus, impacts would be short-term and transient.

Operation. After construction is completed, the solar field and ancillary facilities would be located on-site and the 230-kV transmission line originating on-site would be connected to the planned SCE Whirlwind Substation north of the site. Under worst-case noise assumptions, on-site operational noise would consist of noise from the tracking drive motors (typically one tracking motor per 1,200 feet of trackers), 185 pads containing three enclosed

inverters and one transformer, a substation containing two transformers, and operations and maintenance facilities.

Facility Site. The tracking drive motors and 185 equipment pads with inverters and transformers would be distributed throughout the solar field and operation of these components would generally be limited to daylight hours. All electrical equipment would either be outdoor rated or within a larger enclosure. Electrical equipment including inverters not located within a larger enclosure will be designed specifically for outdoor installation. Outdoor electrical equipment will be contained within individual National Electrical Manufacturers Association (NEMA) 3R metal-clad enclosures. The transformers located throughout the solar field would not be audible at any nearby noise sensitive receivers. The inverters are expected to be the primary source of operational noise. Inverters would only be operational during daytime periods. Facility design specifications indicate that three inverters and transformers combined would generate maximum noise levels of 70 dBA at a distance of 3 feet regardless of whether the inverters are within larger or individual enclosures. If tracker technology is utilized (i.e., versus fixed-tilt solar arrays), tracker motors would operate during daylight hours to sequentially position the panels relative to the sun. Tracker drive motors (1/2 horsepower electric motors) would be located throughout the solar fields and would vary in number from approximately 6,500 for the fixed-tilt trackers with horizontal trackers along SR-138 option up to 26,000 tracker motors for the horizontal tracker option if implemented over the entire site. Tracker motor noise is expected to be 60 dBA at 3 feet from the motors. This noise level would be only slightly perceptible at a distance of 10 feet from the motors. The tracker motors (1/2 horsepower, electric) would operate intermittently for up to approximately 5 seconds at a time during daylight hours. Additionally, the tracker motors would operate continuously for approximately one hour every evening after sunset to reset the panels to face the east in preparation for the following day. The slow movement of the panels during the day and the evening resetting would not typically generate audible noise. The tracker motor related noise associated with daytime operation and reset of the panels every evening after sunset would generate low noise, and the noise from individual motors would be only slightly audible at a distance of 10 feet from the motors (50 dBA or less).

The nearest noise-sensitive receiver is located approximately 2,000 feet from the solar field. Based on these data, acoustical modeling indicates that noise from the inverters, transformers, and tracking motors would be below existing ambient noise levels at all nearby noise-sensitive receivers. Noise from the tracking drive motors and the 185 equipment pads containing the inverters and transformers would not be audible at any noise-sensitive receivers. The substation and operations and maintenance facilities are centrally located within the solar field. The proposed on-site Project substation would have two transformers at its location. Each transformer would have a sound pressure level of approximately 85 dBA at a distance of 6 feet. At a distance of 2,000 feet, the combined sound pressure levels from

these two transformers would be about 37.5 dBA. This sound pressure level would not be audible at any of the noise sensitive receivers.

On-site work would occur at the O&M building during daytime and nighttime hours. During daytime hours, material from transport trucks would be received at the O&M building. Nighttime work at the O&M building would be similar to daytime work except that it would be less frequent. The O&M building is far removed from potential noise sensitive receivers and noise from these operations would not be audible at any potential noise sensitive receivers.

Maintenance activities for the solar field have the potential to occur during both daytime and nighttime hours. For the purposes of this noise analysis, worst case scenarios are assumed and it is assumed that any maintenance activities would occur during nighttime hours. These activities are expected to consist of periodic cleaning of the solar panels and equipment maintenance. Maintenance work can be categorized by light, medium and major maintenance work. Each intensity level has distinct maintenance activities, number of personnel, and equipment that would be used. Light work is likely to occur four days per week and consist of fuse replacement at the combiner box, module replacement, string wiring, bolt tightening and minor tracker work. Two men, one pick-up truck, a small battery powered light stand, battery powered hand tools and other hand tools would likely be used for light maintenance work. Medium work is likely to occur two days per week and consist of combiner box replacement, minor inverter repairs, main DC fuses or AC switches replacement, and tracker motor and linkage repairs. Two men, one pick-up truck, a gas powered light stand with a 10 kW portable generator, battery powered hand tools and other hand tools would likely be used for medium maintenance work. Major work is likely to occur one day per month with the potential for work to continue for two to three consecutive days. Major work would consist of DC or AC wiring replacement, major inverter repairs, transformer repair or replacement and tracker replacement. Four men, two pick-up trucks, one forklift, a gas powered light stand with a 5 kW portable generator, battery powered hand tools and other hand tools would likely be used for heavy maintenance work. The closest residence is 2,000 feet away and nighttime maintenance activities would not be audible at this location or at any other noise-sensitive receivers. Nighttime maintenance activity within 3,000 feet of a noise sensitive receiver would be scheduled prior to 10:00 p.m. to avoid potential noise impacts. This limitation only applies to the northwest portion of the Project site.

Off-site Transmission Line. Potential off-site operational noise would consist of corona discharge noise from the 230-kV transmission line. The off-site portion of the transmission line would be aligned along the east side of 170th Street West in Los Angeles County, and on or near the west and east sides of 170th Street West in Kern County (refer to Figures 4.3-4A and 4.3-4B).

The transmission poles would be set in concrete foundations approximately 6 to 10 feet in diameter and 20 to 30 feet deep. Approximately 46 tubular steel poles (50 to 125 feet tall) are planned. The poles would be approximately 4 to 8 feet in diameter and would be spaced approximately 700 feet apart (on average). All poles would be grounded using grounding rods or other suitable means. Additionally, shield wire would be attached to the ground wire for lightning protection.

Corona is a phenomenon associated with all energized transmission lines. Under certain conditions, the localized electric field near an energized conductor can be sufficiently concentrated to produce a tiny electric discharge that can ionize air close to the conductors. This partial discharge of electrical energy is called corona discharge, or corona, and the resulting ionization of air at the surface of the conductor is a source of audible noise. When corona is produced, it is heard as snaps, crackles, and pops. Several factors, including conductor voltage, shape, and diameter, and surface irregularities such as scratches, nicks, dust, or water drops can affect a conductor's electrical surface gradient and its corona performance. Transmission line designers have two options to reduce the surface voltage gradient at the conductor surface and thus minimize corona effects: 1) increase the diameter of the conductor; or 2) increase the effective diameter by using multiple conductors held apart by spacers. To minimize the potential for corona noise, the diameter of the conductors has been optimized and corona rings will be installed at all conductor attachment points.

The nearest noise sensitive receivers potentially affected by noise from the transmission line are receiver R-3, R-4, R-5, R-6, and R-7. The approximate distance from each of these receivers to the transmission line are included in Table 5.18-8.

As part of the proposed Project, the 230-kV transmission line would be designed and constructed with conventional transmission line methods, configurations, and materials that specifically incorporate design practices to control corona losses. These design methods are standard industry practices, and pertain to the appropriate sizing of conductors, use of a three-phase conductor transmission system, and use of external corona shielding rings. These types of 230-kV facilities have generally performed well throughout the United States in fair weather, and without unacceptable electromagnetic corona noise generation, even in foul (i.e., rainy) weather, where the small diameters of rain droplets on the conductors increase voltage gradients and lead to ionization of air in the vicinity of the conductors.

The Project 230-kV transmission line EMF noise levels during operation, which include consideration of corona effects, were modeled with the results presented on Figure 5.18-3. As shown, the maximum transmission line noise level during operation is approximately 43 dBA during rainy conditions, and occurs directly under the conductors. During fair weather, the maximum transmission line noise is approximately 18 dBA directly under the conductors. Since the decibel is a logarithmic unit of measurement, this noise attenuates exponentially

with distance from the conductor. Noise levels from a line source attenuate at a rate of 3 dBA per doubling of distance.

The Project corona noise levels were calculated using methodology provided in Chapter 8 of the *Transmission Line Reference Book, 345-kV and Above* (EPRI 1987). These methods are considered industry-accepted methods for calculating corona noise levels for transmission lines 115 kV and greater. The calculation tools used to make the audible noise estimates consist of a suite of Microsoft Excel® spreadsheets developed by Bonneville Power Administration that follow the previously developed program titled, Corona and Field Effect Program (Version 3). This program and others like it have been used with confidence to predict electric and magnetic field levels, and audible noise levels, for many years. To estimate audible noise, calculations are performed for a height of 1 meter above the ground, and at mid-span where the conductor is positioned at its lowest point between structures (the estimated maximum sag point).

As shown on Figure 5.18-3, the maximum noise levels occur directly under the transmission line. The transmission line is slightly offset from the poles. The maximum noise level from corona discharge directly under the transmission line during typical "fair weather" conditions is approximately 18 dBA. This noise level is below ambient noise levels and would likely be inaudible in consideration the existing noise environment. The maximum noise level directly under the transmission line during typical "rain" conditions is approximately 43 dBA. Ambient noise measurements during rainy conditions were not conducted; however, this outdoor noise level during periods of inclement weather is not significant in view of the higher than normal ambient noise levels that typically accompany rainy conditions.

Under most conditions corona discharge noise will not be audible; however, regardless of weather conditions, potential corona discharge noise, even at locations directly under the transmission line, is below the most restrictive nighttime noise standard established by Los Angeles and Kern counties. This standard is 45 dBA for nighttime noise in Los Angeles County and the Willow Springs Specific Plan area in Kern County (areas outside of the Willow Springs Specific Plan area may reach 50 dBA for nighttime noise limits in unincorporated Kern County). Noise impacts due to corona discharge would be less than significant.

5.18.3.2.4 Criteria 4: Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels without the project?

Construction.

Facility Site. The construction of the solar field is projected to occur over a period of 30–31 months. Installation of the solar field will occur over the majority of the Project site. The

nearest noise sensitive receiver to the solar field is R-1. R-1 is located more than 2,000 feet from the closest proposed solar panel location.

Construction of the solar field would occur in 6 stages and includes pile foundation installation (fixed-tilt option), installation of ballast foundations for tracker units (tracker option), trenches for underground wiring and conduits, and installation of 34.5-kV transmission lines for on-site electrical connections. Of these activities, pile driving associated with the fixed-tilt option is the loudest activity and noise levels from pile driving operations are used as the basis for determining potential noise impacts from installation of the solar field.

The fixed-tilt panel option could require the installation of approximately 465,000 steel piles approximately 6 inches in diameter driven to a depth of approximately 10 feet over a period of approximately 31 months.

As discussed previously in Section 5.18.3.2.3, noise modeling analysis indicates that noise levels from tracker pile-driving operations at the closest sensitive receptor (R-1) are predicted to be 61 dBA, which exceeds the applicable standard of 55 dBA. Further analysis indicates that the minimum distance from pile driving operations to a noise sensitive receiver needed to comply with the 55 dBA standard is 3,000 feet. Pile driving operations conducted within 3,000 feet may exceed the 55 dBA standard and result in significant noise impact. Pile driving operations will be conducted over a large area and the overwhelming majority of the proposed piles are located at distances well beyond 3,000 feet. The average distance from the potential pile installation to the nearest noise sensitive receiver is approximately 2 miles (10,560 feet) and noise levels from pile driving operations would be approximately 47 dBA when attenuated over this distance. As discussed in Section 5.18.3.2.3, Potential Impact 5.18-1, significant pile-driving noise impacts are predicted to occur at sensitive receptors R-1, R-2, and R-3 without mitigation. With implementation of Mitigation Measure 5.18-1, impacts would be less that significant.

Construction of the solar field may encompass some nighttime work. No pile driving or earthwork would be conducted during nighttime hours. There would also be no heavy equipment utilized during nighttime hours. The following activities can be expected to periodically occur during nighttime construction:

- PV module/tracker assembly (inside and outside)
- PV module installation in the field
- Electrical wiring installation
- Electrical system testing and interconnection to grid
- Dust control watering

These activities would not result in noise impact.

Off-site Transmission Line. The construction equipment associated with the construction of the 230-kV overhead transmission line is considered mobile construction equipment and is subject to different noise standards in Los Angeles County than the noise standards used for the stationary construction standards applicable to construction of the solar farm. For mobile construction equipment, the Los Angeles County Noise Ordinance states that noise levels can not exceed 75 dBA at single-family residences between the hours of 7:00 a.m. and 8:00 p.m. on weekdays. This standard is applicable to noise sensitive receivers located in Los Angeles County. These include R-1, R-2, R-3, R-4, R-5, and R-8. Sensitive receivers R-6 and R-7 are located in Kern County. Construction noise occurring between 6:00 a.m. to 9:00 p.m. during weekdays is exempt from noise regulation in Kern County.

The predominant noise source associated with the construction of the transmission line is the corner-mount pole hole auger/pressure digger. This equipment is expected to generate noise levels of 84 dBA at a distance of 50 feet. R-6 and R-7 are the only noise-sensitive receptors that would potentially receive noise levels higher than 75 dBA during construction. R-6 and R-7 are located in Kern County and construction noise at these locations is not subject to regulation. However, transmission line construction activities in the vicinity of R-6 and R-7 are expected to last 2 days or less; thus, any noise impacts would be short-term and transient.

Operation. Operational-phase noise impacts for the facility site and off-site transmission line would be less than significant as discussed previously in Section 5.18.3.2.3 in Criteria 3.

5.18.3.2.5 Indirect Impacts. Project related traffic is expected to use existing routes along I-5 and SR-14, SR-138, and finally 170th Street West to the Project site. Traffic noise was modeled using the increase in noise from existing conditions to project operation conditions.

There are three different scenarios for changes in traffic that are addressed. The first scenario is associated with the increase in traffic noise from existing traffic conditions to expected traffic conditions in the year 2013 with "No Project" conditions, the second is Year 2013 Project construction traffic, and the third is Project operations traffic.

Table 5.18-10 displays the existing and anticipated Average Daily Traffic (ADT) volumes in 2013 with no Project along the eight road segments that are associated with the proposed Project. The corresponding CNEL levels, at a distance of 15 meters from the road, along each segment for both ADT volumes is calculated and the expected change in level is listed in the column on the right. The "2013 No Project CNEL" for each road segment can now be used to compare changes in traffic noise due to construction and operation in 2013 and 2014, respectively.

As shown in Table 5.18-10, minor increases in traffic-related noise are expected in Year 2013 as compared to Existing Conditions.

During the peak period for the pile foundation construction scenario, there are 906 one-way worker trips (453 workers) and 30 one-way truck trips (15 trucks) per work day added to 2013 "No Project" conditions. The distribution of the worker and truck trips varies by road segment.

Table 5.18-11 displays the expected increases in CNEL at a distance of 50 feet (15 meters) from the respective segment, in 2013, due to construction at the 8–10 MW per month construction rate. The increases in CNEL along both segments of 170th Street West for both construction alternatives are at or above the allowable 5 dBA increase. The calculated increases in CNEL are at a distance of 50 feet (15 meters). The highest increase in CNEL is 9.0 dBA along the south segment of 170th Street West. Based on CEQA guidelines, an increase in traffic noise above 5 dBA is the significance threshold for assessment of traffic noise. The closest noise-sensitive receptor, R-8, is approximately 6,400 feet northwest from where construction traffic would stop along the 170th Street West. The CNEL from construction traffic along 170th Street West is anticipated to be 52.6 dBA at a distance of 50 feet. Over a distance of approximately 6,400 feet, the CNEL would be attenuated by 21 dBA. Construction traffic noise along 170th Street West would not be heard at R-8, or any other noise-sensitive receptor, due to its remote distance. The minimum hourly Leq measured at R-8 was 58.4 dBA. Noise from construction traffic along 170th Street West would be attenuated well below a level of 58.4 dBA at this location. Therefore, noise impacts due to construction traffic would be less than significant.

For Project operational traffic noise, there would be approximately 32 daily trips (16 workers) made by workers at the Project site and occasional truck deliveries. The distribution of the daily trips varies by road segment. In Table 5.18-12, 2014 "No Project" conditions and 2014 Project conditions are listed for each respective road segment. The increase in CNEL from "No Project" to "Project" is less than 5 dBA for all of the road segments. There are no anticipated noise impacts as a result of Project operational traffic conditions.

5.18.4 Cumulative Impacts

There are several other proposed projects that have the potential to result in cumulative noise impacts with the proposed Project (refer to Section 4.6). Since noise attenuates rapidly with distance, only proposed projects that are relatively close to the proposed Project have the potential to result in cumulative noise effects. A review of the cumulative projects list compiled for this EIR (refer to Table 4.6-1 and Figure 4.6-1) indicate that the only proposed project (as of September, 2009) with the potential to result in significant cumulative noise

impacts with the proposed AV Solar Ranch One Project is the proposed Fairmont Butte Motorsports Park (FBMP) located to the east of the proposed Project site.

The proposed Project has the potential to result in adverse noise impacts on residences to the west and north of the Project site due to pile driving of fixed-tilt solar panel foundations (if selected) during the construction phase. A review of the Noise section in the Draft EIR for the FBMP (issued by Los Angeles County in July of 2009) indicates that construction of this proposed project would potentially overlap with the construction phase for the proposed AV Solar Ranch One Project. However, construction of the FBMP was determined to have less-than-significant noise impacts during the construction phase. Similarly, cumulative impacts for noise were also determined to be less than significant (no impact). The operational-phase impacts of the proposed AV Solar Ranch One Project are expected to be minimal and insignificant. The operational phase impacts of the FBMP were determined to be potentially significant on residences within 8,000 feet of the FBMP site, although mitigation measures are listed in the FBMP Draft EIR to reduce impacts. No potentially significant cumulative construction-phase noise impacts on the residences to the west and north of the proposed AV Solar one Ranch One Project site are expected for the FBMP. Additionally, no potentially significant operational-phase cumulative noise impacts would occur due to the minimal noise generated by Project operations for the AV Solar Ranch One Project.

In conclusion, no potentially significant cumulative noise impacts are anticipated for construction or operational phases of the Project.

5.18.5 Mitigation Measures

Construction hours will comply with applicable local ordinances. These hours are 7:00 a.m. to 7:00 p.m. within Los Angeles County and 6:00 a.m. to 9:00 p.m. on weekdays and from 8:00 a.m. to 9:00 p.m. on Saturdays and Sundays within Kern County. It is anticipated that construction will generally occur between 7:00 a.m. and 5:00 p.m., Monday through Friday. Additional hours may be necessary to make up schedule deficiencies, or to complete critical construction activities. Construction hours are expected to be monitored as part of the Mitigation Monitoring and Reporting Plan (MMRP) that will be prepared in accordance with CEQA requirements (California Public Resources Code, Section 21081.6).

As stipulated below in Mitigation Measure 5.18-2, each piece of construction equipment will be fitted with efficient, well-maintained mufflers that reduce equipment noise emissions in order to reduce noise emission levels from equipment and vehicles at the Project site. The Applicant/construction contractor will ensure that Project construction equipment and vehicles will be well maintained.

The only exceedence of applicable noise standards occurs when pile driving, associated with the fixed-tilt option, occurs in the northwest portion of the Project site within 3,000 feet of a

sensitive receiver location. Based on the location of the Project site and the location of noise sensitive receivers, the vibratory pile driver may exceed the noise standard for the noise-sensitive receptors at R-1, R-2, and R-3 if the front of the pile driver is facing the direction of the respective noise-sensitive receptor within a distance of 3,000 feet.

Mitigation Measure (MM) 5.18-1: Pile Driver Orientation. In order to reduce the noise levels generated by the vibratory pile driver and comply with all applicable Los Angeles County noise standards, the pile driver shall be oriented such that the rear of the pile driver faces toward the noise-sensitive receptors when the vibratory pile driver is being utilized within 3,000 feet of the receptors.

MM 5.18-2: Construction Equipment Use of Mufflers. Construction equipment and vehicles shall be fitted with efficient and well-maintained mufflers to reduce noise emission levels. In addition, the Project construction equipment and vehicles shall be maintained according to the manufacturers' instructions and recommendations.

5.18.6 Level of Significance after Mitigation

No potentially significant noise impacts would result from Project operations. Potentially Significant Impact 5.18-1, Exceedance of Los Angeles County Noise Ordinance Standard during Construction due to Pile Driving, would be reduced to a less-than-significant level via implementation of MM 5.18-1: Pile Driver Orientation.

5.18.7 References

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Federal Transit Administration. (FTA). 2006. Department of Transportation. Transit Noise and Vibration Impact Assessment Manual. Vanasse Hangen Brustlin, Inc. FTA-VA-90-1003-06, May 2006.

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Reherman, Clay N, Judith L. Rochat, Erich S. Thalheimer, Michael C. Lau, Gregg G. Fleming, Mark Ferroni, and Christopher Corbisier. 2006. FHWA RCNM, Version 1.0 User's Guide. U.S. Department of Transportation, Federal Highway Administration. Cambridge, MA.

TABLE 5.18-1
STATE OF CALIFORNIA COMMUNITY NOISE EXPOSURE GUIDELINES

Land Use Category	Community Noise Exposure (L_{dn} or CNEL, dBA)			
	Normally Acceptable[1]	Conditionally Acceptable[2]	Normally Unacceptable[3]	Conditionally Unacceptable[4]
Residential – low density, single-family, duplex, mobile homes	50–60	55–70	70–75	75–85
Residential – multiple family	50–65	60–70	70–75	70–85
Transient lodging – motel, hotels	50–65	60–70	70–80	80–85
Schools, libraries, churches, hospitals, nursing homes	50–70	60–70	70–80	80–85
Auditoriums, concert halls, amphitheaters	NA	50–70	NA	65–85
Sports arenas, outdoor spectator sports	NA	50–75	NA	70–85
Playgrounds, neighborhood parks	50–70	NA	67.5–75	72.5–85
Golf courses, riding stables, water recreation, cemeteries	50–70	NA	70–80	80–85
Office buildings, business commercial and professional	50–70	67.5–77.5	75–85	NA
Industrial, manufacturing, utilities, agriculture	50–75	70–80	75–85	NA

Source: Office of Noise Control, California Department of Health.

1 Normally Acceptable = Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

2 Conditionally Acceptable = New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

3 Normally Unacceptable = New Construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

4 Clearly Unacceptable = New construction or development should generally not be undertaken.

NA = Not Applicable.

TABLE 5.18-2
LOS ANGELES COUNTY EXTERIOR NOISE STANDARDS

Noise Zone	Designated Noise Zone Land Use (Receptor Property)	Time Interval	Exterior Noise Level[1] (dBA)
I	Noise-sensitive area	Anytime	45
II	Residential properties	10:00 p.m. to 7:00 a.m. (nighttime)	45
II	Residential properties	7:00 a.m. to 10:00 p.m. (daytime)	50
III	Commercial properties	10:00 p.m. to 7:00 a.m. (nighttime)	55
III	Commercial properties	7:00 a.m. to 10:00 p.m. (daytime)	60
IV	Industrial properties	Anytime	70

[1] Levels reduced by 5 dBA for impact noise (i.e., more restrictive).
Source: Los Angeles County, CA. County Code, Chapter 12.

TABLE 5.18-3
LOS ANGELES COUNTY CONSTRUCTION NOISE LIMITATIONS – MOBILE SOURCES[1]

Time/Hours	Single-family Residential	Multi-family Residential	Semi-residential/ Commercial
Daily, except Sundays and legal holidays, 7:00 a.m. to 8:00 p.m.	75 dBA	80 dBA	85 dBA
Daily, 8:00 p.m. to 7:00 a.m. and all day Sunday and legal holidays	60 dBA	64 dBA	70 dBA

[1] Levels reduced by 5 dBA for impact noise (i.e., more restrictive).

TABLE 5.18-4
LOS ANGELES COUNTY CONSTRUCTION NOISE LIMITATIONS – STATIONARY SOURCES[1]

Time/Hours	Single-family Residential	Multi-family Residential	Semi-residential/ Commercial
Daily, except Sundays and legal holidays, 7:00 a.m. to 8:00 p.m.	60 dBA	65 dBA	70 dBA
Daily, 8:00 p.m. to 7:00 a.m. and all day Sunday and legal holidays	50 dBA	55 dBA	60 dBA

1 Levels reduced by 5 dBA for impact noise (i.e., more restrictive).

TABLE 5.18-5A
KERN COUNTY NOISE STANDARDS

Noise Levels Not To Be Exceeded In Residential Zone[2]			
Maximum Time of Exposure	Noise Metric	7:00 a.m. to 10:00 p.m. (Daytime)	10:00 p.m. to 7:00 a.m. (Nighttime)
30 minutes/hour	L_{50}	55 dBA	50 dBA
15 minutes/hour	L_{25}	60 dBA	55 dBA
5 minutes/hour	$L_{8.3}$	65 dBA	60 dBA
1 minute/hour	$L_{1.7}$	70 dBA	65 dBA
Any period of time	L_{max}	75 dBA	70 dBA

[1] Construction Noise Exemption Times:
6:00 a.m. – 9:00 p.m. Monday through Friday
8:00 a.m. – 9:00 p.m. Saturday and Sunday

[2] Levels reduced by 5 dBA for impact noise.

Source: County of Kern, CA; Chapter 7 of Kern County General Plan.

TABLE 5.18-5B
WILLOW SPRINGS SPECIFIC PLAN UPDATE NOISE LEVEL STANDARDS

		L_{50} dB(A)		
Type of Use	Description	Daytime	Nighttime	CNEL
Insensitive	Noise level does not affect the successful operation of these particular activities, A wide variety uses can be included in this category, including public utilities, transportation systems, and other noise-related uses.	65	60	75
Moderately sensitive	Some degree of noise control must be present if these activities are to be successfully carried out. Included here are general business and recreational uses.	60	55	70
Sensitive	Lack of noise control will severely impact these uses, reducing the quality of life. This category primarily contains residential uses.	55	45	65
Highly sensitive	A high degree of noise control is necessary for the successful operation of these activities. Examples include hospitals and churches.	50	40	60

Source: Kern County Planning Department. Willow Springs Specific Plan Noise Element. 1992.

TABLE 5.18-6
SIGNIFICANT NOISE IMPACT CRITERIA – PROJECT OPERATION

Jurisdiction	Criteria	Noise Metric	Noise Level	Notes
State of California	CEQA	CNEL	3 dBA increase in "normally unacceptable" or "clearly unacceptable" noise/land use compatibility categories	
State of California	CEQA	CNEL	5 dBA increase	
Los Angeles County	Noise Ordinance	L_{eq}	45 dBA Night 50 dBA Day	Zone II Residential
Kern County	Noise Element	L_{50}	50 dBA Night 55 dBA Day	Residential

TABLE 5.18-7
SIGNIFICANT NOISE IMPACT CRITERIA – PROJECT CONSTRUCTION

Jurisdiction	Criteria	Noise Metric	Noise Level	Notes
Los Angeles County	Noise Ordinance	L_{eq}	50 dBA Night 60 dBA Day	Construction-stationary sources 5-dBA reduction for impact devices
Kern County	None	N/A	Exempt	

TABLE 5.18-8
DISTANCES (IN FEET) TO PROJECT SITE FROM NOISE-SENSITIVE RECEPTOR LOCATIONS

Site ID	Latitude	Longitude	Project Boundary	Array Centerline	Proposed Transmission Line[1]
R-1	34º47.798' N	118º27.365' W	1,999	2,122	7,241
R-2	34º48.069' N	118º27.266' W	2,043	2,300	6,620
R-3	34º48.250' N	118º26.186' W	2,668	2,908	1,310
R-4	34º48.679' N	118º26.136' W	5,206	5,444	1,065
R-5	34º48.698' N	118º25.807' W	5,570	5,780	330
R-6	34º50.008' N	118º25.850' W	13,275	13,500	150
R-7	34º50.023' N	118º25.963' W	13,180	13,406	70
R-8	34º46.354' N	118º27.146' W	3,666	3,812	7,192

1 Distances from transmission line are based on use of public road ROW for installation of line versus adjacent private lands.

2 R-6 is a residence (mobile home) located on the east side of 170th Street West north of the intersection with Gaskell Road. It is expected that the necessary easement agreement between the Applicant and the private landowner would allow this residence to be moved, vacated, or demolished if the transmission line is located adjacent to the east side of 170th Street West near this residence (versus the public road ROW).

TABLE 5.18-9
LIST OF EQUIPMENT FOR 230-KV TRANSMISSION LINE CONSTRUCTION

Number of Units	Equipment	Function
1	Backhoe or tracked tractor with blade	Prepare temporary staging areas and site restoration throughout the alignment
1	Corner-mount pole hole auger/pressure digger mounted on the back of a rubber-tired truck	Excavate pole holes for direct embedded poles or for poured concrete piers
1	Forklift	Load/Unload material at temporary lay-down yards
2	Crane	Lift and set assembled towers (or tower sections when space is limited)
1	Flatbed trucks	Carry crews and materials to assemble the towers. Haul crossarms, and materials Pull miscellaneous equipment trailers as required
1	Conductor reel trailer	Haul conductor reels
1	Pole trailers	Haul pole sections to the temporary lay-down yards
2	High-reach bucket trucks	Aerial framing, installing and un-installing conductor stringing sheaves, installing dampers, and conductor clipping
1	Truck-mounted conductor tensioner	Stringing conductor
1	Truck-mounted conductor puller	Stringing conductor
1	Concrete truck	Pouring pole foundations

TABLE 5.18-10
INCREASE IN TRAFFIC NOISE LEVELS FROM EXISTING CONDITIONS TO 2013 NO PROJECT CONDITIONS

Road Segment	Existing ADT	Existing CNEL (dBA)	2013 No Project ADT	2013 No Project CNEL (dBA)	Increase in CNEL Above Existing (dBA)
I-5 north of SR-138	71,000	77.3	80,159	77.8	0.5
I-5 south of SR-138	71,000	77.3	80,159	77.8	0.5
SR-138 west of 170th Street West	2,730	63.1	3,082	63.7	0.6
SR-138 east of 170th Street West	2,730	63.1	3,082	63.7	0.6
170th Street West north of SR-138	254	47.7	287	48.2	0.5
170th Street West south of SR-138	88	43.0	99	43.6	0.6
SR-14 north of SR-138	37,500	74.5	42,338	75.0	0.5
SR-14 south of SR-138	36,000	74.3	40,644	74.9	0.6

TABLE 5.18-11
INCREASE IN TRAFFIC NOISE LEVELS DUE TO 8-10 MW/MONTH CONSTRUCTION RATE

Road Segment	2013 No Project ADT	2013 No Project CNEL (dBA)	2013 8-10 MW/ Month ADT	2013 8-10 MW/ Month CNEL (dBA)	Increase in CNEL Above No Project Conditions (dBA)
I-5 north of SR-138	80,159	77.8	80,394	77.8	0
I-5 south of SR-138	80,159	77.8	80,159	77.8	0
SR-138 west of 170th Street West	3,082	63.7	3,318	64.0	0.3
SR-138 east of 170th Street West	3,082	63.7	3,786	64.5	0.8
170th Street West north of SR-138	287	48.2	755	53.6	5.4
170th Street West south of SR-138	99	43.6	567	52.6	9.0
SR-14 north of SR-138	42,338	75.0	42,384	75.0	0
SR-14 south of SR-138	40,644	74.9	41,299	74.9	0

TABLE 5.18-12
INCREASE IN TRAFFIC NOISE LEVELS DUE TO PROJECT OPERATION CONDITIONS

Road Segment	2014 No Project ADT	2014 No Project CNEL (dBA)	2014 Project ADT	2014 Project CNEL (dBA)	Increase in CNEL Above No Project Conditions (dBA)
I-5 north of SR-138	83,365	78.0	83,369	78.0	0
I-5 south of SR-138	83,365	78.0	83,365	78.0	0
SR-138 west of 170th Street West	3,205	63.8	3,209	63.8	0
SR-138 east of 170th Street West	3,205	63.8	3,234	63.9	0.1
170th Street West north of SR-138	298	48.3	330	48.8	0.5
170th Street West south of SR-138	103	43.7	103	43.7	0
SR-14 north of SR-138	44,031	75.2	44,031	75.2	0
SR-14 south of SR-138	42,270	75.0	42,299	75.0	0

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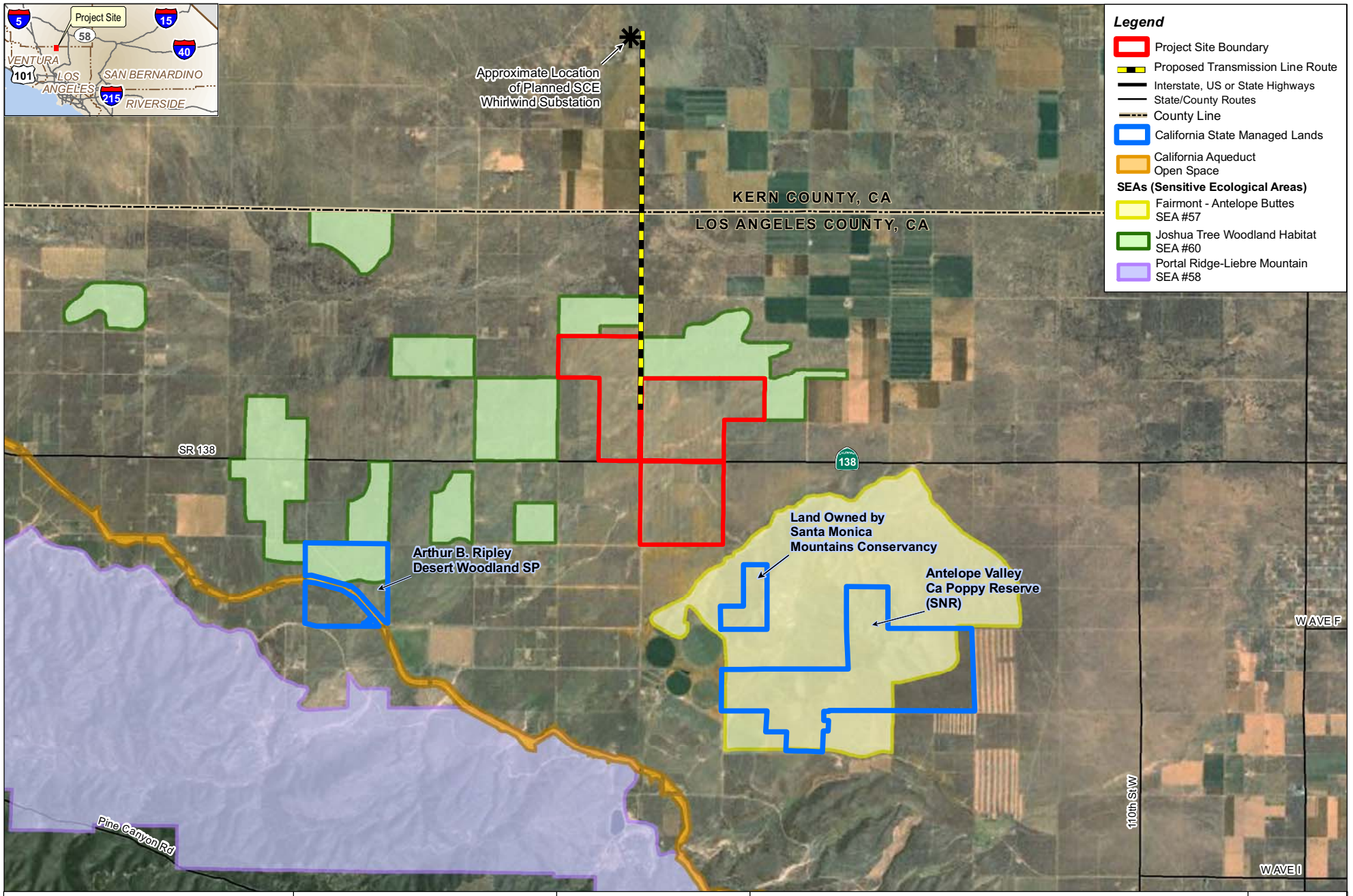

Source:
[1] I-cubed Nationwide Prime - Aerials Express (2007-02-15 image date, 0.3m resolution), [3] LA County General Plan(1986), [4] Antelope Valley Area Wide General Plan (1986), Accessed February 2009: http://planning.lacounty.gov/gis/data.

AV Solar Ranch One EIR

Figure 5.18-1. PROJECT SITE VICINITY MAP

2010

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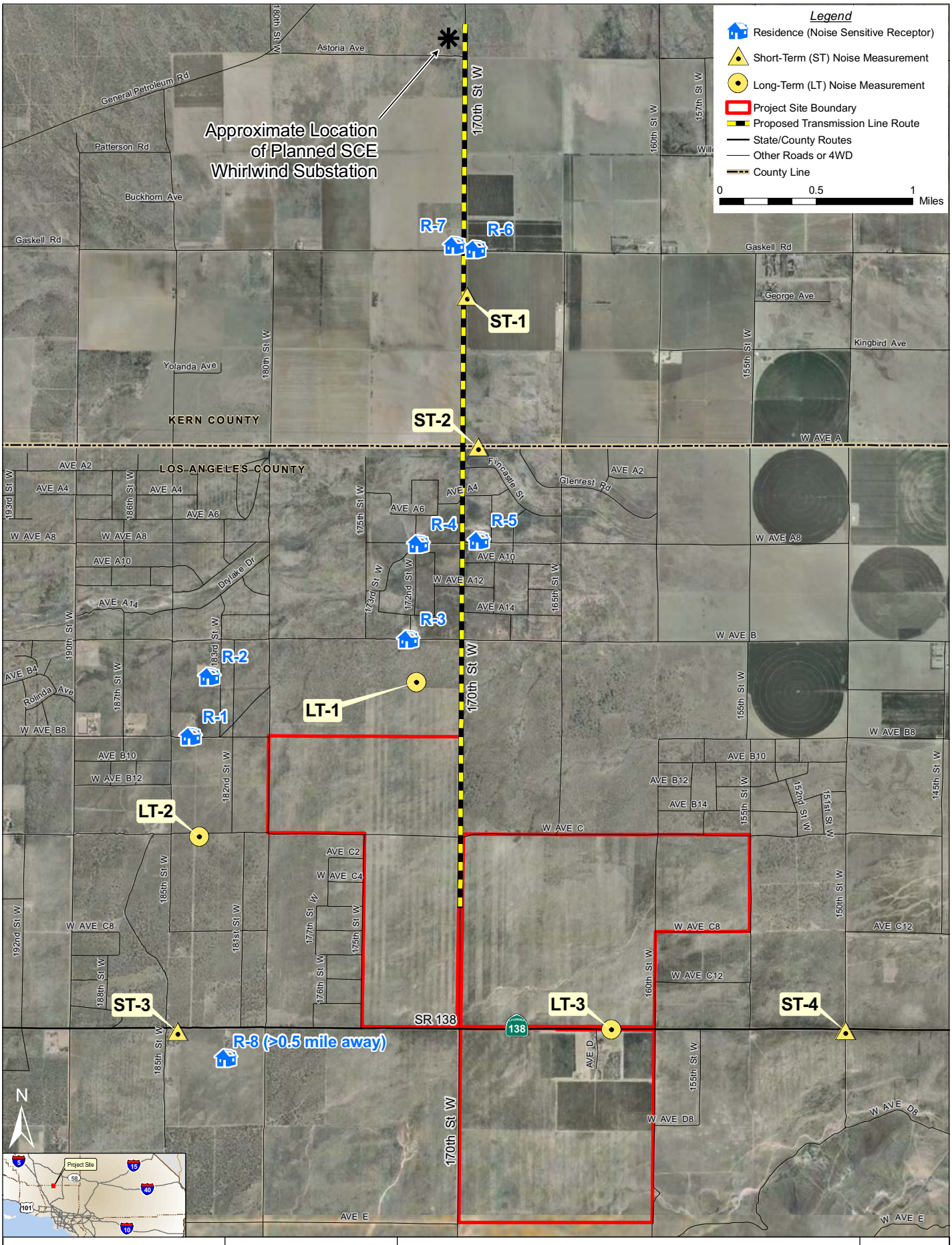

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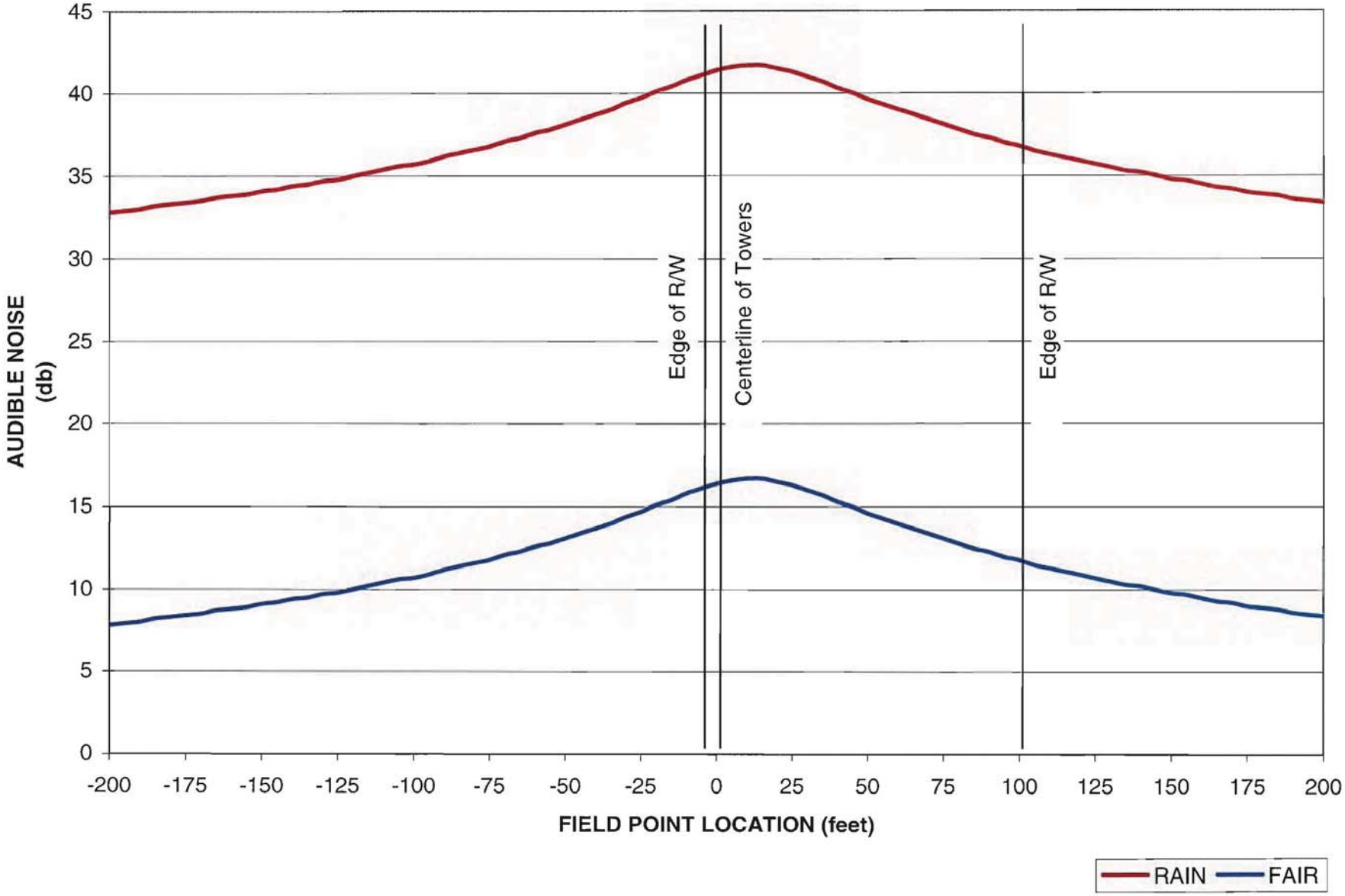
Source:
[1] I-cubed Nationwide Prime - Aerials Express (2007-02-15 image date, 0.3m resolution), [2] ESRI StreetMap USA (2007), [3] URS Corporation.

AV Solar Ranch One EIR

Figure 5-18-2. PROJECT NOISE MEASUREMENT LOCATIONS AND NOISE SENSITIVE RECEPTORS

2010

T/Ladd/NextLight/DEIR#2/Noise/609-107A



Source: TriAxis Engineering Co. Dated 2009 Graph 5	**AV Solar Ranch One EIR**	**Figure 5.18-3.** EMF AUDIBLE NOISE (FAIR WEATHER AND RAIN)	2010

measures, and the expected level of significance after mitigation is applied. The methodology and threshold criteria that were used to determine impact significance are also specified for each environmental impact category.

5.1.2 Impacts Found to be Less Than Significant

In addition to the environmental topics analyzed in detail in this EIR, the County of Los Angeles has determined through the preparation of an Initial Study (dated April 13, 2009) that the development and operation of the proposed Project would not result in potentially significant impacts to the environmental concerns listed below. Therefore, no further review of these issues is necessary. Refer to Section 7.3 for a summary of significant unavoidable impacts, as applicable.

The following discussions of the pertinent Initial Study impacts and are provided in accordance with CEQA Guidelines Section 15128, which states: "An EIR shall contain a statement briefly indicating the reasons that various possible significant effects of a project were determined not to be significant and were therefore not discussed in detail in the EIR."

5.1.2.1 Mineral Resources

Economically recoverable mineral resources are not known to exist on the Project site. The CEQA Initial Study determined the proposed Project does not have the potential to result in the loss of availability of a known mineral resource of value to the region and residents of the state. Additionally, the Initial Study determined that the Project does not have the potential to result in the loss of availability of a locally important mineral resources discovery site delineated in a local general plan, specific plan, or other land use plan.

5.1.2.2 Sewage Disposal

The CEQA Initial Study determined the proposed Project is not in an area served by a community sewage system and thus would not create a capacity problem in sewer lines or at a treatment plant. The Project's sanitary disposal needs would be met with a new, on-site septic system designed and built to County standards.

5.1.2.3 Education

The proposed Project does not involve residential development. The CEQA Initial Study determined the proposed Project does not have the potential to create capacity problems at the school district level or at individual schools, and that the Project would not create student transportation problems. Additionally, it was determined that the Project would not result in substantial library impacts due to increased population and demand by the Project operational workforce of only approximately 16 persons.

SECTION 6.0
ALTERNATIVES TO THE PROPOSED PROJECT

6.1 INTRODUCTION

In accordance with *CEQA Guidelines* Section 15126.6, this EIR assesses a range of reasonable alternatives to the proposed Project, which could feasibly attain most of the basic objectives of the proposed Project and avoid or substantially lessen any of the significant effects of the proposed Project. The Project alternatives considered consist of:

- Alternative facility layout
- Underground off-site/on-site transmission lines

The EIR also discusses alternatives that were considered but eliminated from further consideration and the No Project Alternative, which provides a discussion of existing conditions and what would reasonably be expected to occur in the future if the Project were not approved.

The balance of this section is organized as follows:

- 6.2 – Alternatives Considered but Eliminated from Further Consideration
- 6.3 – Alternatives Analysis
- 6.4 – Environmentally Superior Alternative

6.2 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER CONSIDERATION

In addition to the Project alternatives listed in Section 6.1 above, the following alternatives were considered, but eliminated from further consideration, due to their inability to substantially meet the Project objectives and/or their infeasibility:

- Alternative sites
- Alternative transmission line route(s)
- Alternative project size
- Alternative technologies
- Alternative drainage improvements (Drainages A and B)

A discussion of each alternative considered but eliminated from further consideration follows.

6.2.1 Alternative Sites

6.2.1.1 Introduction

Potential alternative sites for the proposed AV Solar Ranch One Project (Project) would need to be able to substantially meet the Project goals and objectives in order to be considered feasible and appropriate for further analysis in the EIR.

The primary purpose of the proposed Project is to generate 230 MW of clean, renewable electrical power utilizing solar photovoltaic (PV) technology and to integrate the electrical output of the Project into the electrical grid. The electricity produced by the proposed Project will be sold via a Power Purchase Agreement that will provide a set and secure rate of financial return for the Project.

A key objective of the Applicant was to locate the PV facility in an area with the following characteristics: 1) adequate solar radiation; 2) close proximity to a high capacity, 230-kV substation with adequate transmission capacity to convey the electrical output of the Project without requiring downstream upgrades to the transmission grid; 3) lack of threatened and/or endangered biological species on the site; 4) relatively flat site that has been previously disturbed to minimize disturbance to native habitat and to minimize the need for site grading to level the site; 5) existing access to accommodate construction workforce needs; 6) lack of nearby sensitive receptors or land uses to minimize potential conflicts with Project development; 7) landowner that controls and is willing to sell a large enough parcel of land at market price (approximately 2,000 acres minimum) to accommodate a 230-MW PV facility; and 8) access to nearby workforce to minimize traffic and socioeconomic impacts.

Another key objective of the Applicant was to locate the PV facility and the off-site 230-kV transmission line in an area such that: 1) the length of the transmission line interconnection to the electrical grid is less than 5 miles to minimize transmission line losses and costs; 2) necessary transmission line right-of-way (ROW) can be acquired; 3) lack of threatened and/or endangered biological species along the transmission line route; and 4) locate the transmission line route near other linear facilities such as roads and pipelines to minimize new disturbance and potential conflicts with adjacent land uses.

The final key Project objective of the Applicant is to utilize a proven PV panel and equipment design in order ensure that the facility will operate as planned in a reliable manner over the life of the Project in order to meet the primary purpose of the Project (i.e., to generate 230 MW of clean, renewable electrical power and to meet the terms of the Power Purchase Agreement with Pacific Gas and Electric Company (PG&E) and to maximize the 250-MW interconnection request with the California Independent System Operator (CAISO). The Applicant (AV Solar Ranch 1, LLC) identified the proposed 2,100-acre Project site in the Antelope Valley with consideration of the Project goals and objectives discussed above.

The Applicant did not identify any other available sites in the Antelope Valley within a 5-mile radius of the proposed electrical interconnection point at the planned Southern California Edison (SCE) Whirlwind Substation (as specified in the Power Purchase Agreement with PG&E) that could potentially substantially meet the project objectives and goals with respect to: 1) availability of large parcels (i.e., 2,000 acres or more) of private land for sale at market prices (or below); 2) land with appropriate physical characteristics (e.g., relatively flat and undeveloped); and 3) land lacking major environmental constraints (e.g., presence of threatened and endangered species or Williamson Act contracts, etc.).

6.2.1.2 Conclusion

An extensive search to identify a suitable site that meets the Applicant's objectives was undertaken for the Project by the Applicant. Within 5 miles of the planned SCE Whirlwind Substation, the majority of parcels are much smaller than the 2,000 plus acres required for the Project. Assembling an adequate number of smaller-sized parcels that meet the Applicant's objectives would be impractical and was therefore rejected by the Applicant. The few parcels that are of sufficient size did not meet the Applicant's selection criteria. These parcels were either rejected because of environmental sensitivities (e.g., highly visible from the Antelope Valley California Poppy Reserve) or were not available at market prices.

The Applicant was not able to identify any other suitable/available sites within a 5-mile radius of the planned SCE Whirlwind Substation. It is not practical to consider lands that are not available for sale and/or under the Applicant's site control for the solar PV facility or the associated transmission line interconnection which is a key requirement for the technical feasibility of the Project.

Since the proposed 230 MW of solar PV development at the proposed Project site is considered to be capable of meeting all of the Project's goals and objectives and no other suitable, available sites were identified for consideration, no alternative sites are evaluated in detail in this EIR.

6.2.2 Alternative Transmission Line Routes

6.2.2.1 Alternative Transmission Route Along West Avenue C

In addition to the proposed Project transmission line along or adjacent to the 170th Street West public road ROW, an alternative transmission line route was considered. The previously considered alternative route is approximately 1.5 miles in length and follows West Avenue C east to the existing 230-kV Antelope-Magunden transmission line. However, there is currently no public right-of-way accepted by the County of Los Angeles along this route, and the property is in private ownership by multiple owners. Thus, it is not in the Applicant's ability to obtain or condemn the necessary land along this 1.5-mile long route. Additionally,

SCE has indicated that interconnecting directly into the Antelope-Magunden transmission line to the east of the Project site is not a viable option due to the complexities (i.e., equipment needs and impacts to service) of creating an interconnection point along a segment of an existing transmission line. Therefore, this alternative was found to be infeasible and was eliminated from further consideration in this EIR.

6.2.2.2 Other Transmission Line Route Alternatives

The Applicant has entered into a Power Purchase Agreement with PG&E to provide the electrical output from the AV Solar Ranch One Project into the electrical grid at SCE's planned Whirlwind Substation. In addition, the Applicant has a pending Interconnection Agreement with the CAISO to interconnect the electrical output from the AV Solar Ranch One Project at SCE's planned Whirlwind Substation. The most direct transmission line route from the Project site north to the planned SCE Whirlwind Substation is along the proposed route along 170th Street West within the public road ROW or adjacent private land. It is possible that minor modifications to the proposed route will need to occur to accommodate Kern County conditions, private landowner easement conditions and/or SCE transmission corridor crossing and Whirlwind Substation interconnection requirements in Kern County. No other feasible alternatives have been identified, thus this alternative was eliminated from further consideration.

6.2.3 Alternative Project Size

The Applicant considered alternative electrical output ranges for the AV Solar Ranch One facility. The output potential of the Project is determined by the size of the developable portion of the site, solar radiation characteristics, the specific PV panels to be used, and whether the PV panels are fixed or mounted on tracking units. The Applicant determined that the output potential of the proposed Project at the 2,100-acre site is 230 MW and the Power Purchase Agreement (PPA) with PG&E is for 230 MW. The Interconnection Request to the CAISO is for up to 250 MW. The aforementioned considerations combine to determine the appropriate size for the Project. Therefore, project sizes below 230 MW of output limit the Applicant's ability to meet the Project goals and objectives as well as the terms of the PPA with PG&E. Project sizes above 250 MW would require a modification to the CAISO Interconnection Request and pending agreement with SCE. Therefore, a Project in the range of 230 to 250 MW is generally set by the PPA and the interconnection request. No other alternative Project sizes are considered in this EIR although several Project Alternatives considered in Section 6.3 would decrease the output of the Project if they were selected for implementation in lieu of the proposed Project.

6.2.4 Alternative Technologies

The proposed Project is designed to utilize crystalline silicon, or possibly thin-film PV technology mounted on tracker or fixed tilt units. The tracker units considered in this EIR are based on SunPower T-20 and T-0 trackers; actual equipment would be similar to this technology, and would be selected based on cost and market availability.

Other solar technologies considered by the Applicant for this Project include:

- Concentrated PV
- Solar thermal technologies

The Applicant determined that the proposed Project design using crystalline silicon or possibly thin-film PV on tracking or fixed tilt units is the preferred technology for this site given solar radiation characteristics, low water requirements, minimal site preparation-related grading requirements for PV panel installation, proven technology and reliability, and/or cost. Additionally, none of the alternative technologies mentioned above are considered to be capable of reducing the potential environmental impacts associated with the proposed Project. Therefore, other alternative solar technologies as well as fossil fuel generation were eliminated from further consideration in this EIR.

6.2.5 Alternative Drainage Improvements (Drainages A and B)

The Applicant considered improvements to Drainages A and B in order to manage storm water from 100-year flood events, and to control and minimize erosion and off-site sedimentation and transport, while accommodating development of the solar arrays. Under this alternative, improvements to Drainage A consisted of engineering the drainage to extend across the site (as shown in the Project NOP, dated April 29, 2009). To accommodate projected 100-year flood events, the channel had a bottom width of approximately 180 feet, and would extend roughly 1.5 miles. To provide sufficient development of solar arrays, Drainage B was proposed to be filled and relocated to the south. This alternative was determined to be infeasible based on the Los Angeles County Department of Public Works request for a flood easement through the Project site.

6.3 ALTERNATIVES ANALYSIS

6.3.1 Introduction

Descriptions of the alternatives selected for analysis are provided in the following sections, followed by an impact assessment for the alternative by environmental issue area.

For the purposes of this alternatives analysis, the alternatives are identified as follows:

- Alternative 1 – No Project
- Alternative 2 – Alternative Facility Layout
- Alternative 3 – Underground Transmission Lines

Table 6-1 summarizes the key physical differences between Alternatives 1 through 3 relative to the proposed Project.

The summary of impact conclusions for the Project Alternatives considered includes comparisons to the proposed Project to facilitate informed decision making. A tabular summary of the impact conclusions by alternative and environmental topic relative to the proposed Project is presented in Table 6-2.

6.3.2 Alternative 1: No Project

6.3.2.1 Alternative 1 Description

Under the No Project Alternative the proposed Project would not be approved or implemented -- i.e., status quo. The potential environmental impacts and benefits of the proposed AV Solar Ranch One Project would not occur as a direct consequence of Project implementation under the No Project Alternative. The No Project Alternative would involve taking no action to generate 230 MW of clean, renewable electrical power utilizing solar PV technology and to integrate the electrical output of the Project into the electrical grid. This alternative would not allow the Project to help the State of California meet its current and planned goals for increasing renewable generation.

Additionally, if the Project is not developed for solar energy generation, the property would likely be developed for other uses. Possible alternative uses could include residential uses, since a portion of the property had been previously subdivided, and the previous landowner was granted a CUP from LACDRP for development of 160 residential units as part of a potential master planned development. Additionally, based on the current LACDRP zoning ordinance, allowable uses by right under the property's existing zoning designation (Heavy Agriculture [A-2]) consist of: agriculture (crops); residential uses (including but not limited to single family dwellings and family care homes); agriculture (including, but not limited to animal hospitals, dairies, kennels, feed mills, greenhouses, livestock feed and sales yards, cattle grazing, raising of horses and poultry); fairgrounds; fruit and vegetable packaging plants; campgrounds; oil wells (including the installation and use of such equipment, structures, and facilities as necessary for all drilling and producing operations); and miscellaneous uses. Such other uses would have associated impacts to environmental resources.

In summary, the No Project Alternative does not constitute a reasonable alternative to the proposed Project because it is incapable of meeting the Project goals and objectives, or contributing to the State's ability to meet its near- and long-term renewable energy generation goals and objectives. If the proposed Project is not approved and implemented it is likely that the Project site would be developed for other purposes (e.g., residential) with commensurate environmental impacts.

6.3.2.2 Impact Assessment for Alternative 1 – No Project

Under the No Project Alternative, the proposed Project would not be implemented and the associated impacts of the proposed Project discussed in Section 5.0 (Environmental Impact Analysis) would not occur. However, as previously described, if the Project is not developed for solar energy generation, it is possible that the property could be developed for other uses. These potential uses are outlined above; however, the actual future use of the property is unknown and it is not possible to evaluate the proposed Project in conjunction with the No Project Alternative and include these potential uses. Thus, for the purposes of this impact assessment, it is assumed that the subject property would not be developed and would remain in its current state and use (former agriculture and undeveloped land).

The following sections analyze the impacts, by resource topic, for the No Project Alternative versus the proposed Project.

6.3.2.2.1 Geotechnical Hazards. If the proposed Project were implemented, the potential for strong ground motion would be present and grading would be required, but any potential significant impacts (due to seismic shaking, grading or otherwise) would be reduced to less than significant levels through engineering design and mitigation measures. Under the No Project Alternative, the current geologic conditions and associated geotechnical hazards at the site would remain unchanged from those presently existing. Strong ground motion would potentially exist; however, no grading or impacts associated with grading would take place under the No Project Alternative. The No Project Alternative would result in no geotechnical hazard-related impacts, whereas the potential construction and operational phase impacts associated with the proposed Project would be less than significant with mitigation.

6.3.2.2.2 Flood Hazards. Under the proposed Project, engineering design and mitigation measures, Low Impact Design standards, and BMPs would be implemented to reduce levels of any potential significant impacts (due to any changes in existing drainages, flow, erosion, run-off, infiltration, and debris deposition) to less than significant levels. Additionally, the proposed Project would also avoid all on-site drainages. Under the No Project alternative, the current floodplains, drainage, flow, and associated flood hazards at the site would remain unchanged from those presently existing. The potential for flooding and erosion would exist under the No Project Alternative. The No Project Alternative would result in no flood

hazard-related impacts, whereas the potential construction and operational phase impacts associated with the proposed Project would be less than significant with mitigation.

6.3.2.2.3 Fire Hazards. The property is in a designated Fire Zone 3. Under the proposed Project, the risk of fire danger during construction and operation due to smoking, refueling, welding and off-road equipment use is potentially significant. However, the proposed Project would develop and implement a Fire Protection and Prevention Plan to mitigate these impacts to less than significant levels. Under the No Project Alternative, the current fire hazard conditions at the site would remain unchanged from those presently existing. As the property is in a designated Fire Zone 3, the potential for fires to occur exists under the No Project Alternative. The No Project Alternative would result in no fire hazard-related impacts and would avoid potentially significant impacts associated with Project construction and operation, whereas the potentially significant impacts associated with the proposed Project would be less than significant with mitigation.

6.3.2.2.4 Water Quality. If the proposed Project were implemented, it would require the drilling and use of an on-site water well(s), as well as installation and use of a septic tank/leach field system. Potential impacts associated with the use and operation of on-site water wells and a septic tank/leach field system are expected to be less than significant, since the depth to groundwater and soils/permeability characteristics as determined from a geotechnical study indicate that site conditions could support the proposed septic tank and leach field. Construction of the proposed Project would create ground disturbance that could potentially degrade the quality of site stormwater runoff. However, potential impacts to stormwater runoff would be reduced to less than significant levels through the implementation of BMPs in compliance with a SWPPP and SUSMP. Under the No Project Alternative, the current hydrologic and water quality conditions at the site would remain unchanged from those presently existing, and no additional wells or waste treatment facilities would be introduced to the area. The No Project Alternative would result in no water quality related impacts, and would avoid any effects associated with temporary construction disturbance or operation of an on-site well and septic system/leach field, whereas the potential impacts associated with the proposed Project would be less than significant with mitigation.

6.3.2.2.5 Air Quality. If the proposed Project were implemented, potential construction-related air quality impacts include: 1) possible exceedance of AVAQMD significance thresholds for PM_{10} and NO_X; 2) increases in fugitive dust and Valley Fever risk; and 3) exceedance of ambient air quality standards. To reduce these impacts to less than significant levels, the Project would implement the following mitigation measures and standards: ensure AVAQMD construction emission thresholds would be met; Fugitive Dust Emission Control Plan; visible dust plume monitoring; limited vehicle traffic and equipment use; diesel emission controls for heavy haul vehicles; on-road vehicle emission standards; proper

equipment maintenance; engine idling restriction; off-road gasoline-fueled equipment standards; and off-road equipment operator worker protection. Under the No Project Alternative, the current air quality conditions at the site would remain unchanged from those presently existing. The No Project Alternative would result in no air quality-related impacts and would avoid the effects of construction described above, whereas the potential impacts associated with the proposed Project would be less than significant with mitigation. However, the No Project Alternative would not allow the potential long-term air quality benefits related to clean, renewable energy production (e.g., versus traditional fossil fuel generation) from the proposed Project to occur.

6.3.2.2.6 Biological Resources. If the proposed Project were implemented, potentially significant construction-related impacts to biological resources include: 1) removal and alteration of natural habitat areas; 2) disturbance of Joshua tree woodland habitat; 3) loss and modification of wildflower field; 4) injury or mortality of Blainville's Horned Lizard or loss of habitat; 5) injury or mortality of burrowing owl or loss of habitat; 6) injury or mortality of special-status birds or loss of habitat; 7) wildlife movement; and 8) fugitive dust during construction. To reduce these impacts to less than significant levels, the Project would implement the following mitigation measures: Habitat Enhancement and Vegetation Management Plan; off-site mitigation for loss of habitat; biological restrictions on dust suppression; Fugitive Dust Emission Control Plan; worker environmental education program; biological monitoring; Blainville's Horned Lizard capture and relocation; pre-construction nesting bird surveys; pre-construction wintering Burrowing Owl surveys; Burrowing Owl Management Plan. Additionally, the Project as proposed would involve installation of wildlife permeable fencing. Under the No Project Alternative, the current biological conditions would remain unchanged from those presently existing. The No Project Alternative would result in no biological impacts, and would avoid the effects of construction and operation, whereas the potential impacts associated with the proposed Project would be less than significant with mitigation.

6.3.2.2.7 Cultural and Paleontological Resources. If the proposed Project were implemented, its construction would create ground disturbance that could potentially impact existing on-site cultural and paleontological resources. It is expected that these potentially significant impacts would be reduced to less than significant levels through implementation of Project mitigation measures that include avoidance of areas of known resources, Phase II/III testing to determine resource significance and protection/data recovery requirements, archaeological and Native American monitoring, and construction worker training. If human remains were encountered, work would stop and the remains would stay in situ until the Los Angeles County Coroner and NAHC (in the event the remains are Native American in origin) were contacted to determine the necessary procedures for protection and preservation. Under the No Project Alternative, the current site conditions associated with cultural and paleontological resources would remain unchanged from those presently existing, and on-site

cultural and paleontological resources would remain undisturbed. The No Project Alternative would result in no impacts to cultural or paleontological resources and would avoid any effects associated with temporary construction disturbance, whereas the potential impacts associated with the proposed Project would be less than significant with mitigation.

6.3.2.2.8 Agricultural Resources. If the proposed Project were implemented, it is expected that installation of the transmission poles would result in permanent disturbance of less than approximately 1 acre of Prime Farmland and Williamson Act contract land (refer to Section 5.9), which is considered a negligible amount and a less than significant impact. Additionally, the proposed Project would not involve other restrictions, obstructions, or resources that would result in the conversion of Farmland to non-agricultural uses. Under the No Project Alternative, the current agricultural conditions at the site would remain unchanged from those presently existing. The property contains no Unique Farmland, Farmland of Statewide Importance, or Williamson Act contract lands, although Prime Farmland and Williamson Act contract lands exist along the proposed 230-kV transmission line route in Kern County. The No Project Alternative would result in no agricultural-related impacts, whereas the potential impacts associated with the proposed Project would be less than significant with implementation of a mitigation measure requiring Kern County approval of placement of transmission poles on land under Williamson Act contract.

6.3.2.2.9 Visual Qualities. Unique aesthetic features located in the Project vicinity include Fairmont Buttes, the Antelope Valley California Poppy Reserve, and Arthur B. Ripley Desert Woodland Park. If the proposed Project were implemented, it would have less than significant impacts on the unique aesthetic features in the area, since views of these features would not be substantially altered. Additionally, the Project would not obstruct views from regional riding or hiking trails. The Project may be remotely visible from portions of the Antelope Valley California Poppy Reserve and Arthur B. Ripley Desert Woodland State Park, but it would not dominate perspectives from these areas and thus impacts would be less than significant. The Project would not produce significant new sources of light and glare because the solar panels are designed to absorb light and Project lighting would be restricted to the main plant access gate, O&M building, and parking area, and designed to avoid spillage to adjacent areas. The potentially significant visual impacts associated with the proposed Project include effects to motorist views along SR-138 and 170th Street West. However, increased roadway setbacks, use of horizontal (or fixed tilt, stationary) solar panels along SR-138 and implementation of visual screening and planting of native species along SR-138 are expected to minimize these impacts. Under the No Project Alternative, the current visual characteristics of the site and surrounding area would remain unchanged from those presently existing. No designated scenic highways or scenic corridors exist in the Project area. The No Project Alternative would result in no visual-related impacts and would avoid all changes in visual character to the area, whereas the potential impacts associated with the proposed Project would be less than significant with implementation of Applicant

Proposed design measures and mitigation (i.e., roadway setback, use of horizontal tracker solar panels near SR-138, and installation of native vegetation screening along both sides of SR-138 adjacent to the facility fence line).

6.3.2.2.10 Traffic and Access. If the proposed Project were implemented, it could result in potentially significant traffic-related impacts during construction that include disruption of residential or emergency traffic due to: 1) utility roadway crossings; and 2) construction of the 230-kV transmission line along 170th Street West. To mitigate these impacts to less than significant levels, a Worksite Traffic Control plan would be implemented during construction. The proposed Project would not result in any long-term operational traffic or associated impacts. Under the No Project Alternative, the current traffic conditions at the site would remain unchanged from those presently existing. The No Project Alternative would also avoid potential Project-related construction equipment traffic damage to the pavement along affected portions of 170th Street West. The No Project Alternative would result in no traffic-related impacts and would avoid effects associated with construction and utility crossings, whereas the potential construction impacts associated with the proposed Project would be less than significant with mitigation.

6.3.2.2.11 Fire and Sheriff Protection Services. If the proposed Project were implemented, it would not result in potentially significant impacts to fire and sheriff protection services, since: 1) it would not result in population increases that would result in a need for additional staffing; and 2) the proposed Project is not located in an area of special fire or law enforcement problems. Under the No Project Alternative, the current fire and sheriff protection services would remain unchanged from those presently existing. The No Project Alternative would result in no impacts to fire or sheriff protection services, whereas the potential impacts associated with the proposed Project would be less than significant.

6.3.2.2.12 Utility Services. If the proposed Project were implemented, it would not result in potentially significant impacts to utility services, since: 1) the Project's water requirements are minimal (i.e., 150 AFY during construction and 12 AFY during operation); 2) historical water use at the site and site-specific well pump tests in 2009 indicate groundwater quality and quantity in the area are available (see Section 5.14, Utility Services, for more information including Antelope Valley Groundwater Basin Adjudication related issues) to meet both the Project and fire fighting needs; 3) utility services for gas or propane would not be required; 4) less than significant amounts of waste would be generated; and 5) the Project would not result in growth-inducing effects or increases in population, and subsequent increased demand for utilities. Under the No Project Alternative, the current utility services at the Project site would remain unchanged from those presently existing. The No Project Alternative would result in no impacts related to utility services, whereas the potential impacts associated with the proposed Project would be less than significant.

6.3.2.2.13 Environmental Safety. If the proposed Project were implemented, the potentially significant impacts related to environmental safety would include hazardous material use during construction and operation, as well as disturbance of potential on-site soil contamination. To mitigate these impacts to less than significant levels, use of hazardous materials during construction and operations would be managed in accordance with applicable laws and regulations, and the potential for soil contamination would be further assessed in conjunction with the CUPA (LACFD) and remediated as appropriate (the Applicant has enrolled in the LACFD Voluntary Oversight Program). Under the No Project Alternative, the current environmental safety hazards at the site would remain unchanged from those presently existing, and potential soil contamination on the site would remain undisturbed. The No Project Alternative would result in no impacts related to environmental safety, whereas the potential impacts associated with the proposed Project would be less than significant with mitigation.

6.3.2.2.14 Land Use. The proposed Project is considered a utility installation that is an allowable N-1 use with the issuance of a Conditional Use Permit. The proposed Project is presently applying for a Conditional Use Permit, and implementation of the Project as conditioned by Los Angeles County would be expected to be compatible with the property's land use and zoning designations. Thus, impacts related to zoning or land use inconsistencies are expected to be less than significant. Under the No Project Alternative, the current land use would remain unchanged from that presently existing (Non-Urban [N-1]). As a result, the No Project Alternative would result in no impact to land use.

6.3.2.2.15 Global Climate Change. Under the proposed Project, Project-related GHG emissions during construction and operation would not exceed CARB reporting thresholds for stationary sources. Therefore, the project would result in less than significant impacts, and would also be consistent with Assembly Bill (AB) 32 and other renewable energy production goals at the federal and state levels. Under the No Project Alternative, greenhouse gas (GHG) emissions at the site would remain unchanged from those presently existing. The No Project Alternative would result in no impacts related to greenhouse gases, whereas the potential impacts associated with the proposed Project would be less than significant during construction and beneficial during the estimated 30-year Project life.

6.3.2.2.16 Noise. If the proposed Project were implemented, it could result in potentially significant noise-related impacts during construction due to pile driving activities that may temporarily exceed the Los Angeles County Noise Ordinance. To mitigate this impact to less than significant levels, the pile driver would be oriented such that the rear faces the noise-sensitive receptors, which would decrease the noise to levels that would be in compliance with applicable noise standards. Under the No Project Alternative, the current noise conditions at the site would remain unchanged from those presently existing. The No Project Alternative would result in no noise-related impacts and would avoid construction-generated

noise, whereas the potential impacts associated with the proposed Project would be less than significant with mitigation.

6.3.2.2.17 Changes in Character. The proposed Project features would be expected to be most apparent in foreground views, where the facility would potentially have a dominant scale to the visual environment. Public viewing locations in the affected foreground views would be along SR-138 and 170th Street West where both roads bisect the Project site. Under the No Project Alternative, the current character of the site and surrounding area (i.e., rural agricultural with SR-138 [and adjacent power lines] and 170th Street West through the site) would remain unchanged. The potential impacts of the No Project Alternative compared to the proposed Project associated with change in character are related primarily to visual qualities as discussed previously in Section 6.3.2.2.9. The No Project Alternative would result in no impacts related to change in character whereas the analysis of potential Project changes in character of the Project area (Section 7.0) concludes that there would be adverse, but less than significant impacts to the character of the site and surrounding area.

6.3.2.2.18 Growth-Inducing Impacts. The proposed Project involves construction and operation of a solar photovoltaic electric generating facility and a privately-owned, 230-kV high-voltage transmission line, and does not involve an increase or expansion of public services or removal of major obstacles to growth. Therefore, the proposed Project would not result in growth-inducing impacts. The No Project Alternative would result in no change to the existing site conditions and thus, would also result in no growth-inducing impacts.

6.3.3 Alternative 2: Alternative Facility Layout

6.3.3.1 Alternative 2 Description

Alternative 2, the Alternative Facility Layout, increases the Project development setback (i.e., distance from the Project property line to the proposed facility fence) to 250 feet from adjacent Significant Ecological Area (SEA) #60 (Joshua Tree Woodland Habitat) areas along the northern and northeastern portions of the Project site, and increases the Project setback from Drainage C along the southern Project site development boundary (fenceline) from a minimum of approximately 150 feet to 1,500 feet (refer to Figure 6-1). The primary purpose of Alternative 2 would be to lessen potential Project impacts to biological resources.

While the proposed Project design provides minimum setback distances of 70 to 100 feet from the Project property boundary to the proposed fence line (refer to Figure 4.4-1A) to protect adjacent SEA habitat areas, incorporation of a 250-foot setback from the SEA areas would provide a larger buffer distance between the proposed development and the adjacent SEA areas. The 250-foot SEA buffer areas would result in avoidance of approximately 75 acres of primarily rabbitbrush scrub habitat in the buffer area, and would reduce the site generating capacity by approximately 4 MW.

The proposed Project configuration is designed with a minimum 100-foot setback from the FEMA 100-year floodplain boundary (Zone A) for Drainage C to avoid impacts to the drainage, habitat associated with the drainage, and wildflower field areas. The 1,500-foot setback from Drainage C under Alternative 2 would avoid areas containing both wildflower field and rabbitbrush scrub. Alternative 2 would increase the wildflower avoidance area, provide a larger buffer from Drainage C, and allow wildlife movement in the setback area. This setback would preclude approximately 180 acres from development, of which approximately 120 acres comprises wildflower field and 60 acres of rubber rabbitbrush scrub. Avoidance of this acreage would reduce the Project generation output by approximately 21 MW.

The Alternative 2 configuration would remove proposed PV panels (including the associated collection and distribution equipment) in the setback areas from the SEA boundary on the north and Drainage C on the south, and would require relocation of the Project fenceline and perimeter area roads currently proposed in the expanded setback areas under this alternative. In general, other Project facilities such as the O&M building, substation, transmission line, etc. would remain unchanged. Incorporation of the increased buffer areas from the adjacent SEA areas and Drainage C would decrease the developable area on the Project site by approximately 10 percent but would not result in change in impact significance findings for biological resources, compared to the proposed Project. Additionally, Alternative 2 would reduce the facility's generating capacity by approximately 25 MW. As a result, implementation of Alternative 2 would render the Project incapable of meeting its full contractual electricity delivery obligation under the Project power purchase agreement, which would incur financial damages (i.e., penalties) under the power purchase agreement contract terms. As a result, Alternative 2 is not considered to be fully capable of meeting the Project goals and objectives.

6.3.3.2 Impact Assessment for Alternative 2 – Alternative Facility Layout

6.3.3.2.1 Geotechnical Hazards. Implementation of the proposed Project would not be expected to result in any potentially significant impacts related to geotechnical hazards (refer to Section 5.2, Geotechnical Hazards). Alternative 2 would not involve any construction or operational impacts related to geotechnical hazards that are any different than the proposed Project, but it would result in less site disturbance and development (approximately 255 acres) than the proposed Project. Implementation of Alternative 2 would not involve development in a known active or potentially active fault zone, seismic hazards zone, or Alquist-Priolo Fault Zone. Alternative 2 would also not involve development on a site subject to high groundwater and site soils are not susceptible to hydrocompaction or subsidence and the site soils exhibit low expansive potential. Similar to the proposed Project, Alternative 2 would result in less than significant impacts with implementation of the same mitigation presented in Section 5.2 for the proposed Project.

6.3.3.2.2 Flood Hazards. Implementation of the proposed Project would not be expected to result in any potentially significant impacts related to hydrology/flood hazards (refer to Section 5.3, Flood Hazards). Selection of Alternative 2 would result in less site disturbance and development (approximately 255 acres) than the proposed Project and would increase the setback from the FEMA 100-year flood zone for Drainage C. Implementation of Alternative 2 would not involve development in any of the four on-site ephemeral drainages, would maintain site drainage patterns, and would balance pre- and post-development site runoff. The reduced site disturbance would result in less potential flood-related impacts relative to the proposed Project. Similar to the proposed Project, Alternative 2 would result in less than significant impacts with implementation of the same mitigation presented in Section 5.3 for the proposed Project.

6.3.3.2.3 Fire Hazards. The proposed Project is not located within a Very High Fire Hazard Severity Zone (Fire Zone 4), and with mitigation, would not be expected to result in any potentially significant impacts related to fire hazards. The development area for Alternative 2 is a subset of the proposed Project development area and thus Alternative 2 would also not involve development in a Very High Fire Hazard Severity Zone. Under Alternative 2, rabbitbrush scrub and wildflower field areas would be left to grow outside the modified fenceline boundary in the northern and southern property areas, which could increase regional fire hazards slightly compared with the proposed Project since the undeveloped areas would not be subject to the LACFD fuel management requirements for the Project site. Although Alternative 2 would result in a minor increase in fire hazards relative to the proposed Project, selection of Alternative 2 would result in less than significant impacts with implementation of the same mitigation presented in Section 5.4 for the proposed Project.

6.3.3.2.4 Water Quality. Construction and operation of the proposed Project would be expected to result in less than significant impacts related to water quality with mitigation. Selection of Alternative 2 would result in less site disturbance and development (approximately 255 acres) than the proposed Project. The reduced site development footprint for Alternative 2 and commensurate decreases in vegetation removal, ground disturbance, and compaction/creation of impervious surfaces would be expected to reduce the potential for soil erosion and sediment in stormwater runoff with associated reduced water quality impacts compared to the proposed Project. As for the proposed Project, Alternative 2 would avoid development within all on-site ephemeral drainages and include development setbacks. The on-site septic system for the proposed Project would be the same under Alternative 2. Selection of Alternative 2 would result in less than significant impacts with implementation of the same mitigation presented in Section 5.5 for the proposed Project.

6.3.3.2.5 Air Quality. The proposed Project would result in less than significant impacts to air quality during the construction phase with mitigation as assessed in Section 5.6, Air

Quality. Selection of Alternative 2 would result in less site disturbance and development (approximately 255 acres) than the proposed Project. The reduced site development footprint and associated reduced earthwork and construction activities with associated equipment emissions for Alternative 2 would reduce air emissions during the construction phase compared to the proposed Project. As for the proposed Project, construction and operational phase air emissions of criteria pollutants would all be expected to be less than the applicable Antelope Valley Air Quality Management District thresholds. Therefore, selection of Alternative 2 would result in less than significant impacts to air quality assuming implementation of the same mitigation presented in Section 5.6 for the proposed Project.

However, Alternative 2 would reduce the electrical output of the proposed Project by approximately 25 MW, thereby reducing the potential long-term air quality benefits of the Project associated with criteria pollutant emissions compared to traditional fossil fuel generation (refer to Table 5.6-19).

6.3.3.2.6 Biological Resources. Implementation of the proposed Project would result in less than significant impacts with mitigation to biological resources related to adjacent SEA areas, Drainage C, sensitive habitat in the vicinity of Drainage C, and wildlife passage (refer to Section 5.7, Biological Resources). The development footprint for Alternative 2 is a subset of the proposed Project area and would reduce the Project footprint by approximately 255 acres. Alternative 2 would reduce the area of disturbance to the on-site wildflower field and rubber rabbitbrush and, therefore, would also reduce the Project's need for off-site mitigation land. Alternative 2 would not directly increase connectivity between SEA areas, but would increase the amount of undisturbed rabbitbrush scrub habitat near SEA JTWH areas. The Alternative 2 setback along the southern Project area would increase the probability for wildlife movement laterally along the southern portion of the Project site. Compared with the proposed Project, Alternative 2 would cause fewer impacts to biological resources. Alternative 2 would result in less than significant impacts with implementation of the same mitigation presented in Section 5.7 for the proposed Project.

6.3.3.2.7 Cultural and Paleontological Resources. The proposed Project would result in potentially significant but mitigable impacts to cultural resources during ground disturbance activities as assessed in Section 5.8, Cultural and Paleontological Resources. Alternative 2 would result in less surface (approximately 255 acres) and subsurface ground disturbance, which would lessen the potential to encounter cultural and paleontological resources compared to the proposed Project. As a result, implementation of Alternative 2 with mitigation would have less potential to impact cultural and paleontological resources compared to the proposed Project. Alternative 2 would result in less than significant impacts to cultural and paleontological resources with implementation of the same mitigation presented in Section 5.8 for the proposed Project.

6.3.3.2.8 Agricultural Resources. As assessed in Section 5.9, Agricultural Resources, the proposed Project would result in less than significant impacts to agricultural resources with mitigation, where mitigation is applicable to the transmission line segment in Kern County. The development footprint for Alternative 2 is a subset of the proposed Project and would not result in any significant impacts to Unique Farmland or Farmland of Statewide Importance. Approximately 10.8 acres of mapped Prime Farmland on the Project site would be developed under the proposed Project and Alternative 2. The mapped Prime Farmland area was last irrigated in 1978 and was never cropped, thus the area does not meet the CDOC definition for Prime Farmland. The proposed off-site 230-kV transmission line (which is applicable to the proposed Project and Alternative 2) would result in the temporary and permanent disturbance of 2.1 acres and 0.83 acre, respectively, of Prime Farmland. These small acreages, including the less than 1 acre of total permanent disturbance, are considered to be less than significant. The proposed off-site transmission line (5 poles) traverses land under Williamson Act Contract in Kern County. As determined for the proposed Project, Alternative 2 would result in less than significant impacts with implementation of the same mitigation presented in Section 5.9 for the proposed Project.

6.3.3.2.9 Visual Quality. Implementation of the proposed Project with design measures and mitigation would result in less than significant impacts to visual resources as assessed in Section 5.10, Visual Qualities. Implementation of Alternative 2 would reduce the developable area of the Project site by approximately 10 percent. The Alternative 2 setback from Drainage C at the southern portion of the Project site has the potential to reduce Project visual impacts in the Antelope Valley California Poppy Reserve and Arthur B. Ripley Desert Woodland State Park, which are located south and southwest, respectively, of the Project site, as compared with the proposed Project. However, the visual simulations prepared for the proposed Project (refer to Figures 5.10-9 and 5.10-11 in Section 5.10) show that the Project site and facilities would be barely perceptible from these locations. As a result, the reduced development under Alternative 2 would cause negligible changes in views from the Antelope Valley California Poppy Reserve and Arthur B. Ripley Desert Woodland State Park. Similarly, as shown on the simulation of the proposed Project from the northern Project boundary (Figure 5.10-13), the facility site as built under the proposed Project scenario is not visible, such that the additional setback along the northern Project site area under Alternative 2 would be expected to result in negligible changes in views from sensitive receptors. Additionally, the setback areas under Alternative 2 would not reduce Project impacts to visual quality related to travelers on SR-138 since the setback areas are on the northern and southern Project site areas which are well removed from SR-138. As determined for the proposed Project, Alternative 2 would result in less than significant visual impacts with implementation of the same mitigation presented in Section 5.10 for the proposed Project.

6.3.3.2.10 Traffic and Access. Construction and operation of the proposed Project would result in less than significant impacts to the study area roadway and intersections LOS,

emergency access, and the existing pavement with mitigation as assessed in Section 5.11, Traffic and Access. Alternative 2 would require less construction truck deliveries and a shorter construction schedule and, therefore, a shorter construction worker trip generation timeframe compared with the proposed Project. The fewer truck deliveries under Alternative 2 would be expected to lessen potential detrimental effects on the existing pavement of 170th Street West. Alternative 2 would result in the same potentially significant impacts to traffic resulting from construction of 34.5-kV and 230-kV transmission line crossings of 170th Street West as the proposed Project. As determined for the proposed Project, Alternative 2 would result in less than significant impacts to traffic and access with implementation of the same mitigation presented in Section 5.11 for the proposed Project.

6.3.3.2.11 Fire and Sheriff Protection Services. The proposed Project would result in less than significant impacts to fire and sheriff protection services as assessed in Sections 5.12 and 5.13. Alternative 2 would develop a smaller (approximately 255 acres less) portion of the Project site than the proposed Project. However, the areas that would not be developed on the northern and southern portions of the site under Alternative 2 would not be expected to affect any factors related to fire or sheriff protection services. Neither the proposed Project nor Alternative 2 would result in population increases requiring a need for additional LACFD or LADS staffing, the Project site is not located in a special fire protection or law enforcement area, and potential temporary emergency access issues associated with roadway encroachments in 170th Street West during construction of Project transmission lines would be mitigated via implementation of Mitigation Measure 5.11-1 (Provide Adequate Worksite Traffic Control). As determined for the proposed Project, Alternative 2 would result in less than significant impacts to fire and sheriff services.

6.3.3.2.12 Utilities. Construction and operation of the proposed Project would result in less than significant impacts to utility services as assessed in Section 5.14. Implementation of Alternative 2 would be expected to result in slightly less water use during construction and operation, and slightly less generation of solid waste during construction due to the reduced development area, compared with the proposed Project. As a result, impacts to utility services associated with Alternative 2 would be less than for the proposed Project. As determined for the proposed Project, Alternative 2 would result in less than significant impacts to utility services.

6.3.3.2.13 Environmental Safety. As assessed in Section 5.15, the proposed Project would result in potentially significant but mitigable impacts to environmental safety related to the potential to encounter contaminated soil during earth disturbance, use of hazardous materials, and proper abandonment of the existing historic on-site oil well, as applicable. Implementation of Alternative 2 would result in less ground disturbance (approximately 255 acres) and as a result, would lessen the potential to encounter contaminated soils. Therefore, Alternative 2 would potentially result in less impact to environmental safety compared with

the proposed Project. However, the potential impacts to environmental safety identified above for the proposed Project are still applicable to Alternative 2, including development of the area surrounding the existing farmhouse structures and previously farmed portions of the Project site. As determined for the proposed Project, Alternative 2 would result in less than significant impacts to environmental safety with implementation of the same mitigation presented in Section 5.15 for the proposed Project.

6.3.3.2.14 Land Use. The proposed Project is considered a utility installation allowable under the site's N-1 land use designation with the issuance of a Conditional Use Permit. Under Alternative 2, the Project facility would constitute the same land use type (i.e., solar PV electricity generation) as the proposed Project. Since the facility would occupy a smaller area under Alternative 2 (approximately 255 acres less) than the proposed Project, the land use type would similarly occur but over a smaller area. Additionally, Alternative 2 would result in less potential indirect effects on adjacent SEA #60 than the proposed Project due to the increased development setback along the northern and northeastern portions of the site adjacent to SEA #60. As a result, Alternative 2 would cause less potential impacts to land use than the proposed Project. As for the proposed Project, Alternative 2 would be expected to involve the need to get a modification to the County's Green Building Ordinance relative to tree planting. As determined for the proposed Project, Alternative 2 would result in less than significant impacts to land use with implementation of the same mitigation presented in Section 5.16 for the proposed Project.

6.3.2.2.15 Global Climate Change. Under the proposed Project, Project-related GHG emissions during construction and operation would not exceed CARB reporting thresholds for stationary sources as assessed in Section 5.17. Therefore, the project would result in less than significant impacts, and would also be consistent with Assembly Bill (AB) 32 and other renewable energy production goals at the federal and state levels. Implementation of Alternative 2 would generate slightly reduced construction greenhouse gas emissions due to the shorter construction timeframe and associated reduced use of fossil fuel-operated equipment. During operation, Alternative 2 would generate slightly less quantities of greenhouse gas emissions as a result of the less maintenance required to maintain the smaller facility area. With implementation of the mitigation measures identified in Section 5.6 (Air Quality) for the proposed Project, construction and operational phase impacts associated with greenhouse gas emissions under Alternative 2 would be less than CARB reporting thresholds and thus, less than significant.

However, Alternative 2 would reduce the electrical output of the proposed Project by approximately 25 MW, thereby reducing the long-term benefits to global climate change of the Project associated with substantial reductions in greenhouse gas emissions compared to emissions from traditional fossil fuel generation and existing electrical grid supplies.

6.3.3.2.16 Noise. As assessed in Section 5.18, the proposed Project would result in potentially significant, but mitigable noise-related impacts during construction due to pile driving activities that may temporarily exceed the noise levels specified in the Los Angeles County Noise Ordinance. Implementation of Alternative 2 would result in less developable area for PV arrays and as a result, would lessen the noise generated during construction. Additionally, temporary construction as well as operational phase noise levels on properties adjacent to the Project site would be reduced slightly due to the increased buffers on the northern and southern portions of the site, such that noise-related impacts from Alternative 2 would be less than the proposed Project. As determined for the proposed Project, Alternative 2 would result in less than significant noise impacts with implementation of the same mitigation presented in Section 5.18 for the proposed Project.

6.3.3.2.17 Changes in Character. The proposed Project would result in changes in character in the Project area due to the presence of the solar PV electricity generation facility; however, these changes would be less than significant as a result of Project design and mitigation measures. Implementation of Alternative 2 would result in less development around the northern, northeastern, and southern property boundaries and, as a result, would slightly lessen potential Project-related changes in character to viewers travelling along 170th Street West both north and south of SR-138. As determined for the proposed Project, Alternative 2 would result in less than significant impacts related to changes in character with implementation of the same mitigation presented in Section 5.10, Visual Qualities for the proposed Project.

6.3.3.2.18 Growth-inducing Impacts. The proposed Project involves construction and operation of a solar photovoltaic electric generating facility and a privately owned 230-kV high-voltage transmission line, and does not involve an increase or expansion of public services or removal of major obstacles to growth. Therefore, the proposed Project would not result in growth-inducing impacts. Alternative 2 reduces the size of the facility by approximately 255 acres, but as with the proposed Project, involves construction and operation of a solar photovoltaic electric generating facility and privately-owned transmission line. As a result, Alternative 2 would not result in growth-inducing impacts.

6.3.4 Alternative 3: Underground Transmission Lines

6.3.4.1 Alternative 3 Description

Alternative 3, Underground Transmission Lines, would underground substantial portions of the Project-related 34.5-kV and 230-kV transmission lines in Los Angeles County. The locations of underground transmission lines under this alternative (on-site and off-site) in Los Angeles County would be the same as the corresponding overhead line locations under the proposed Project (refer to Figures 4.3-4A/B and 4.4-4). Solar field characteristics and other

project features under this alternative would remain unchanged compared to the proposed Project.

Under Alternative 3, the majority of the proposed overhead 34.5-kV transmission lines (approximately 3 miles) would be buried underground rather than using the proposed Project's overhead pole-mounted system. The 34.5-kV transmission lines would remain above ground at the 170th Street West crossing near the on-site substation and at crossings of state jurisdictional drainages (refer to Figures 4.4-1A and 4.4-4). The above ground construction is required at the 170th Street West crossing because the Los Angeles Department of Water and Power (LADWP) aqueduct pipeline, located along the west side of 170th Street West, cannot be crossed by an underground transmission line. Above ground crossings would be used at jurisdictional drainages (e.g., Drainage A) to avoid disturbance to these features.

Alternative 3 would also provide for undergrounding a significant portion of the 230-kV transmission line between the Project substation and the Los Angeles County-Kern County line (approximately 2.25 miles). The 230-kV line is required to be aboveground where it exits the northern Project site boundary and crosses to the east side of 170th Street West to avoid interference with the LADWP aqueduct. At a point just south of the Kern County line, the 230-kV line would again be aboveground to cross 170th Street West and the aqueduct, and would remain aboveground in Kern County to SCE's planned Whirlwind Substation. Kern County has indicated that they do not prefer that the transmission line be underground; therefore, this alternative only considers undergrounding in Los Angeles County.

6.3.4.1.1 Construction. The 34.5-kV transmission line would be installed by direct burial of the conductors in trenches approximately 4 feet deep and 1 foot wide. Engineered backfill would be imported for placement around the conductors, approximately 4 inches on all sides. Approximately 28 percent of the backfill material would consist of engineered backfill, and the remainder would be native soils. Total excavation for burial of the 3 miles of 34.5-kV transmission line under Alternative 3 would be approximately 2,350 cubic yards (refer to Table 6-1). Approximately 660 cubic yards of engineered backfill (e.g., sand) would be imported for fill around the conductors. Excess soil from the excavation (approximately 660 cubic yards) would be used for fill on the Project site. The approximately 3 miles of underground 34.5-kV lines are assumed to be installed in one month (Month 10 of construction) and to include approximately 33 additional truck trips (round trip) to import the 660 cubic yards of engineered backfill (i.e., approximately 1.5 truck deliveries per work day on average).

Special design considerations are relevant to installation and maintenance of 230-kV underground transmission lines. The heat generated from operation of the transmission lines must be dissipated to allow proper operation of the lines and avoid damage to the conductors.

The lines would be installed in a trench approximately 2 feet wide and 6 feet deep. The conductors, buried at a depth of approximately 3 to 6 feet, would be encased in thermal concrete for heat dissipation. The thermal concrete above the conductors would extend to within 12 inches of the ground surface. Conductors designed for underground operation are produced in approximately 2,000 foot lengths and must be spliced together to provide the total length of the transmission line. This would require installation of nine underground concrete vaults, each approximately 27 feet long by 10 feet wide by 10 feet deep, along the transmission line to allow conductor splicing and access for maintenance activities. Additionally, transition stations (risers) must be installed where the transmission line transitions from below ground to aboveground. Figure 6-2 shows a typical underground transmission line, underground vault, and transition structure details. Figure 6-3 shows a conceptual cross section and plan views of the underground transmission line and vault locations.

Installation of the 230-kV transmission line underground in the Los Angeles County portion would result in approximately 6,880 cubic yards of excavation. Approximately 5,300 cubic yards of material would need to be imported for the thermal backfill for installation of the transmission line conduit duct bank and underground vaults. This would result in generation of approximately 5,300 cubic yards of excess material from excavation. This excess material would be hauled back to the Project site and used as fill on the Project site.

The approximately 2.25 miles of underground 230-kV line construction is estimated to require approximately 6 months to install (versus 4 months for overhead construction). Additional truck trips associated with hauling approximately 5,300 cubic yards of excess excavated material to the Project site for use as on-site fill and for importation of thermal concrete backfill (approximately 5,300 cubic yards) is estimated as approximately 16 truck trips (round trip) per work day on average.

6.3.4.1.2 Operation. Operationally, both overhead and underground collection systems function similarly, where electricity is transported through conductors. Beyond these operational similarities however, there are physical differences that include: 1) the degree of permanent disturbance; and 2) limited access for periodic maintenance and repair activities. Implementation of Alternative 3 would result in a greater temporary disturbance and excavation volumes associated with transmission line construction. The more limited access to underground lines for maintenance purposes could also result in reduced reliability and longer duration of repairs relative to an overhead transmission line system. In addition, implementation of Alternative 3 would limit future land use options above the underground facilities (e.g., off-site 230-kV transmission line) to avoid damage to the buried conduit and vault banks.

6.3.4.2 Impact Assessment for Alternative 3

As noted above under the description of Alternative 3 in Section 6.3.4.1, the only project components that change under this alternative are those portions of the 34.5-kV and 230-kV transmission lines that would be undergrounded. The other project features, such as the solar fields, O&M facilities, substation, site access roads, and the aboveground 230-kV line in Kern County would remain unchanged relative to the proposed Project. Similarly, the operational characteristics under Alternative 3 would change only for those portions of the transmission lines that would be undergrounded. All other operational characteristics would remain the same as described for the proposed Project. Therefore, because of the characteristics of Alternative 3 relative to the proposed Project, the following impact assessment focuses primarily on the differences in impacts associated with transmission line construction and applicable operational characteristics.

The undergrounding of Project-related transmission lines as defined under this Alternative 3 would: 1) reduce visual impacts and corona noise; 2) result in greater temporary construction and permanent disturbance; 3) limit future land use options; and 4) limit access for maintenance purposes and potentially result in reduced reliability and longer power outages and duration of repairs.

Potential impacts to biological and agricultural resources due to implementation of Alternative 3 would be greater than for the proposed Project 230-kV overhead system, but would remain less than significant with mitigation. It is important to note that once underground 230-kV transmission line facilities are constructed, land uses above the underground line are limited, since the underground transmission line duct bank will be backfilled with thermal concrete to within 12 inches of the ground surface, which creates a physical barrier to future land use. A 10-foot-wide easement area centered on the 2-foot-wide underground conduit bank and expanded 20-foot-wide, approximately 37-foot-long easements centered on the 10-foot-wide by 27-foot long, vault locations would be required for the underground 230-kV line. No surface or subsurface ground disturbance would be allowed in these easement areas for safety reasons over the life of the Project. The underground 34.5-kV line routes on the site are located primarily with permanent access roads or firebreaks that would already involve surface disturbance and permanent vegetation removal, thus overlying land uses would not be affected relative to the proposed Project.

Key environmental impact differences between the proposed Project with overhead transmission lines (34.5- and 230-kV) and Alternative 3 are as follows:

- It is estimated that Alternative 3 (230-kV portion) would result in a permanent footprint of approximately 2.8 acres, as compared to approximately 0.03 acre associated with the proposed overhead system (22 poles at approximately 50 square feet each).

- It is estimated that Alternative 3 (230-kV portion) could potentially permanently impact approximately 0.6 acre of Joshua tree woodland habitat, whereas it is expected that the proposed overhead poles could be located to avoid Joshua trees, and approximately only 0.006 acre of Joshua tree woodland habitat would be permanently impacted by the proposed overhead 230-kV transmission line. The Joshua tree woodland habitat that would be affected under the proposed Project and Alternative 3 is within the public road ROW, and no Joshua trees are present in the potentially affected areas.
- The underground system would require greater amounts of temporary construction disturbance and excavation to install due to the required trenching of the conduit banks and access vaults.
- Installation of the 230-kV underground transmission line would be expected to extend the duration of line construction by approximately 6 weeks relative to the proposed overhead line.
- Visual impacts would be reduced relative to the proposed Project.
- The underground system would reduce corona noise along the 230-kV route in Los Angeles County.
- Future land uses would be limited over the approximately 1.5-mile-long off-site buried conduit bank for the 230-kV transmission line (i.e., between northern Project site boundary and Kern County line).

An assessment of impacts resulting from construction and operation of Alternative 3 is presented by resource area in the following sections. A summary impact comparison is presented in Table 6-2.

6.3.4.2.1 Geotechnical Hazards. Implementation of the proposed Project, including on-site and off-site transmission lines, would not be expected to result in any potentially significant impacts related to geotechnical hazards. Impacts or risks resulting from geotechnical hazards would be as discussed for the proposed Project (Section 5.2, Geotechnical Hazards). Based on existing information, neither the Project facility site nor the off-site transmission line is located in an active or potentially active fault zone, known Seismic Zone, or Alquist-Priolo Earthquake Fault Zone. The Project is not in an area of active landslides, or in an area of high landslide potential. Further, due to the relatively flat topography, the potential for seismically induced landslides is also low. Groundwater conditions indicate that potential impacts to either the Project facility site or off-site transmission line due to high groundwater level or associated phenomenon such as high subsidence, liquefaction, or hydrocompaction, are expected to be less than significant for both construction and operation.

The locations of the proposed 34.5-kV and 230-kV overhead transmission lines are the same as the locations for the underground transmission lines under Alternative 3. The same geologic conditions and potential geologic hazards exist for the proposed overhead and alternative underground transmission lines.

The undergrounding of the 34.5-kV and 230-kV lines for Alternative 3 would result in more site disturbance than the proposed overhead lines associated with excavation (refer to Table 6-1) to bury the conduit banks and vaults below ground surface (approximately an additional 7,871 cubic yards of excavation for the 34.5-kV and 230-kV lines). The additional subsurface soil excavation required under Alternative 3 for conduit bank and vault installation would increase the potential for excavation wall collapse and increased soil erosion during the construction phase until installation of the subsurface facilities was complete and disturbed soil surface areas were stabilized. The proposed overhead and underground transmission lines would be constructed in accordance with recommended engineering design standards as specified in the geotechnical engineering report for the Project (refer to Appendix B) and applicable building codes and OSHA standards. In addition, disturbed areas would be stabilized following construction and revegetated, where appropriate, to minimize the potential for accelerated erosion. As a result, construction and operation of the proposed overhead or alternative underground 34.5-kV and 230-kV lines would not be expected to result in significant geotechnical hazard related impacts.

With the implementation of recommended engineering design standards, adherence to applicable building codes, and implementation of Mitigation Measure 5.2-1 (Implementation of Geotechnical Engineering Report Recommendations) similar to the proposed Project, selection of Alternative 3 would be expected to result in less than significant impacts relative to geotechnical hazards.

6.3.4.2.2 Flood Hazards. As assessed in Section 5.3, Flood Hazards, installation of the proposed on-site and off-site overhead lines under the proposed Project would be expected to result in less than significant impacts (with mitigation) related to surface hydrology/flood hazards. Selecting Alternative 3 would result in more ground disturbance than the proposed overhead lines associated with an additional 7,871 cubic yards of excavation, and would therefore potentially increase impacts to surface hydrology compared with the proposed Project. However, since the design of the underground transmission line facilities for Alternative 3 would require the finished grade above the conduit bank to be the same as the pre-construction condition, potential impacts to surface hydrology and flood hazard associated with Alternative 3 would remain less than significant with mitigation.

The absence of established or historic channels along the proposed off-site overhead transmission route and the Alternative 3 underground line route would preclude any impacts to drainage courses associated with transmission line construction or operation. A portion of

the transmission line route in northern Los Angeles County is within a FEMA-mapped 100 year floodplain. Due to the transient and temporary nature of construction, flood hazard to off-site transmission line construction activities (overhead or underground) is considered less than significant. In addition, potential impacts to drainage patterns along the transmission line route during construction would be less than significant, since the surface grade would be restored to its preconstruction condition following installation of the underground conduit banks.

During the operational phase of Alternative 3, neither the proposed overhead poles (2 within FEMA 100-year floodplain) or underground conduit bank or vaults would impact hydrology or flood potential within the floodplain due to the small permanent footprint of the poles (approximately 50 square feet each) and since the conduit bank and vaults would be buried below the ground surface. Under Alternative 3 the last two vault locations with manholes (2 each; vault entrances) in northern Los Angeles County (refer to Figures 6-2 and 6-3) would need to be elevated approximately 1 foot above the ground surface at the manhole cover locations to prevent potential flood water entry at these locations. The four manhole locations would not be expected to impact hydrology or flood potential due to their small size (less than 4 feet in diameter) and low elevation above grade.

With implementation of design measures and Mitigation Measure 5.3-1 (Erosion Control and Stormwater Management Plan) discussed in Section 5.3 for the proposed Project, the selection of Alternative 3 would result in less than significant impacts to hydrology/flood hazards.

6.3.4.2.3 Fire Hazards. The proposed Project, including the transmission line routes, is not located in a Very High Fire Hazard Severity Zone. Transmission line design and construction would be required to comply with applicable fire code and design standards, and would be subject to LACFD approvals. To protect emergency response access in the event of a fire in the Project area, mitigation measures to provide for safe traffic control in the event of lane closures would be implemented, resulting in a less than significant impact to emergency response access.

Underground construction of the 34.5-kV and 230-kV lines would increase the use of construction equipment (e.g., for trenching, excavations, and backfill operations) and involve more construction activities that have the potential to emit sparks. In addition, the construction schedule for the underground 230-kV lines is estimated to be approximately 6 weeks longer than that for the overhead lines under the proposed Project. While the potential fire hazards associated with construction of Alternative 3 are slightly greater than for the proposed Project, application of the mitigation identified for the proposed Project in Section 5.4 would reduce the potential fire hazards associated with Alternative 3 to less than significant levels. Similar to the proposed Project, fire hazards during the operational phase

for Alternative 3 would also be less than significant with implementation of the same mitigation presented in Section 5.4 for the proposed Project.

6.3.4.2.4 Water Quality. As assessed in Section 5.5, Water Quality, groundwater characteristics in the Project area (i.e., more than 100 feet below ground surface) combined with implementation of SWPPP/SUSMP BMPs as described in Section 5.5 for the proposed Project would prevent significant impacts to groundwater quality. Potential impacts to the quality of stormwater runoff due to erosion and excess sedimentation would also be addressed through implementation of a SWPPP and SUSMP. Areas disturbed due to Project construction activities would be stabilized during construction to minimize wind and water erosion and generation of fugitive dust by watering and/or the use of dust palliatives and soil tackifiers. In addition, cleared and graded surfaces that would not be subject to future disturbance would be allowed to revegetate, as practical, to minimize dust and erosion. Revegetation would be conducted as soon as practicable, based on seasonal weather conditions, to maximize revegetation success.

Installation of the 34.5-kV and 230-kV transmission lines underground for Alternative 3 would not be expected to result in potentially significant impacts related to water quality, although more surface area and ground disturbance, including excavation activities, would be required to install the underground lines. This increased earthmoving activity would temporarily increase the potential for soil erosion and sedimentation, and would therefore potentially result in more impacts to surface water/stormwater quality than the proposed Project. Installation of the transmission line, whether overhead or underground, would occur on flat ground and no drainages would be disturbed during construction. With implementation of the design measures (BMPs, SWPPP, and SUSMP) identified in Section 5.5 (Water Quality) for the proposed Project that would minimize soil erosion and associated stormwater impacts, the potential water quality-related impacts associated with construction and operation of Alternative 3 would be reduced to less than significant levels.

6.3.4.2.5 Air Quality. The proposed Project would result in less than significant impacts to air quality with mitigation. Implementation of Alternative 3 would result in increased generation of fugitive dust and equipment tailpipe emissions compared to the proposed Project due to the additional ground disturbance, excavation activities, and truck traffic associated with undergrounding the transmission facilities. Specifically, Alternative 3 would involve: increased duration of construction (approximately 6 additional weeks); increased site and subsurface disturbance (estimated additional excavation of approximately 7,871 cubic yards for the 34.5-kV lines and the 230-kV line); increased truck traffic associated with hauling excess material from underground 230-kV excavations and import of thermal concrete backfill; and associated particulate matter and NO_X emissions as well as other criteria pollutants from construction equipment.

As shown below, incremental underground transmission line installation related emissions would be greater than for the proposed Project, but would not result in an exceedance of the AVAQMD construction emission thresholds. Therefore, air quality impacts during construction for Alternative 3 would remain less than significant with mitigation.

ESTIMATED MAXIMUM TOTAL CONSTRUCTION EMISSIONS

	Criteria Pollutant (Tons)					
Activity	PM_{10}	$PM_{2.5}$	CO	ROG	NO_X	SO_X
Proposed Project (total with overhead 34.5- and 230-kV lines)	27.94	8.81	69.15	9.90	74.30	0.14
Project total with Alternative 3 (underground 34.5- and 230-kV lines)	29.28	9.15	70.07	10.37	76.24	0.14
AVAQMD threshold[1] (38-month construction period cumulative total)	46.80	–	312.06	78.01	78.01	78.01

[1] AVAQMD thresholds are prorated for the proposed 38-month construction period for the Project.

Operation of both the proposed Project and Alternative 3 would result in less emissions than would occur during construction, and no exceedances of AVAQMD thresholds would occur. Operational phase air emissions for Alternative 3 would be less than significant and similar to the proposed Project's less than significant impact.

6.3.4.2.6 Biological Resources. As discussed in Section 5.7, Biological Resources, development of the Project site including construction of the approximately 3 miles of proposed overhead on-site 34.5-kV transmission lines would not result in significant impacts to biological resources with implementation of identified mitigation measures. The 3 miles of proposed overhead 34.5-kV lines that would be underground under Alternative 3 are located on proposed roads and/or fire breaks within the facility site. Construction of the proposed overhead 230-kV transmission line in Los Angeles County would result in temporary and permanent disturbances of approximately 2.75 and 0.03 acres, respectively, of rabbitbrush scrub and Joshua tree woodland. Of this, the temporary and permanent disturbance estimates for the proposed overhead line installation in Joshua tree woodland habitat along the east side of 170th Street West in the public road ROW are approximately 0.6 and 0.006 acre, respectively.

Although the proposed overhead 230-kV transmission line route and the underground route under Alternative 3 are the same, implementation of Alternative 3 would involve more vegetation removal and ground disturbance to install the transmission lines underground versus overhead. As with the proposed overhead 230-kV transmission line route, Alternative 3 would traverse rabbitbrush scrub and Joshua tree woodland habitat in the public road ROW in Los Angeles County. Installation of the underground 230-kV facilities would require an approximate construction work area width of 25 feet which would result in approximately 1.5

acres of temporary disturbance within the 0.5 mile of Joshua tree woodland habitat (note: not within SEA #60) traversed by the transmission line route along the east side of the public road ROW of 170th Street West north of the Project site. As described in Section 6.3.4.2, a 10-foot wide easement area centered on the underground conduit bank and an expanded 20-foot-wide, approximately 37-foot-long easement centered on the vault locations would be required to protect the underground 230-kV facilities from damage under Alternative 3. Based on the required easement, the estimated permanent disturbance to Joshua tree woodland habitat under Alternative 3 is approximately 0.6 acre.

Construction of the underground 230-kV transmission line would result in an estimated 5.3 acres of temporary disturbance to rabbitbrush scrub habitat, and approximately 2.3 acres of permanent disturbance. Alternative 3 would result in greater impacts to rabbitbrush scrub and Joshua tree woodland habitats for construction and operation than for the proposed overhead line, however, the increased impacts involve relatively few acres of habitat removal. Additionally, habitat impacts would be mitigated to less than significant levels with implementation of the mitigation identified in Section 5.7, Biological Resources. The on-site 34.5-kV component of Alternative 3 would involve installation of approximately 3 miles of proposed overhead line underground. This would occur in areas already designated as permanent roads or fire breaks, and no additional impacts to vegetation/ biological resources would occur relative to the proposed Project. Alternative 3 would result in less overhead lines and poles (approximately 86 out of 90, 60-foot-tall poles would be undergrounded) which would reduce potential perches for ravens on the site during the operational phase, which is considered preferable to the proposed Project.

No endangered or threatened wildlife species, and no regional wildlife movement corridors are expected to occur and/or be significantly affected by the proposed Project or Alternative 3 transmission lines. Based on the increased disturbed habitat areas along the 230-kV transmission line route, Alternative 3 would result in greater impacts to biological resources (Joshua tree woodland and rabbitbrush scrub) compared with the proposed Project. However, with implementation of mitigation measures identified in Section 5.7 for the proposed Project, Alternative 3 impacts would be mitigated to less than significant levels.

6.3.4.2.7 Cultural and Paleontological Resources. The proposed Project would result in potentially significant but mitigable impacts during ground disturbance activities due to the potential encounter and disturbance of cultural and paleontological resources. Selection of Alternative 3 would increase excavation activities associated with 34.5-kV and 230-kV line installation, thereby increasing the potential for encountering and damaging currently unidentified significant cultural resources. The Phase I cultural surveys performed for the Project in 2009 and 2010 did not identify cultural resource sites along the portion of the off-site transmission line route in the public road ROW of 170th Street West (east side) in Los Angeles County. Application of the proposed cultural and paleontological resource

mitigation measures presented in Section 5.8.5 would protect potentially present subsurface resources from damage during excavation activities associated with Alternative 3. With implementation of the mitigation presented in Section 5.8 (Cultural and Paleontological Resources) for the proposed Project, construction and operational phase impacts under Alternative 3 would be less than significant.

6.3.4.2.8 Agricultural Resources. The proposed Project transmission line route in Los Angeles County does not affect Farmland (Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as defined by the California Department of Conservation Farmland Mapping and Monitoring Program [FMMP]), Williamson Act contracted lands, or result in other changes to convert Farmland to non-agricultural uses. Similar to the proposed Project, Alternative 3 would not affect or convert Farmland, would not involve Williamson Act contracted lands, and would result in less than significant impacts. However, portions of the proposed 230-kV transmission line at the edge of the public road ROW along 170th Street West may be used for grazing by private land owners. Grazing activities are typically compatible with overhead transmission lines (except at intermittent pole locations every 700 feet or so) but not necessarily with underground transmission line conduit banks and associated access vaults. Agricultural (grazing) use of the land over the buried conduit and intermittent vault locations required for the underground 230-kV line would need to be curtailed or precluded under Alternative 3. The undergrounding of the 230-kV transmission line would be within Los Angeles County, where an estimated 1.8 acres of Grazing Land, as categorized by the FMMP, within the existing public ROW of 170th Street West would be permanently impacted by undergrounding during the operational phase. In comparison, approximately 0.01 acre of permanent impact to Grazing Land within the public road ROW would occur for the corresponding portion of the proposed overhead line.

Installation of the alternative underground 34.5-kV and 230-kV transmission lines, as would occur under Alternative 3, would cause slightly greater temporary and permanent disturbance than the proposed overhead lines. However, impacts to agricultural resources in Los Angeles County would be less than significant for both Alternative 3 and the proposed Project (as analyzed in Section 5.9) because the off-site 230-kV transmission line, whether aboveground or underground, would be located within the public road ROW in Los Angeles County, would not affect Williamson Act contracted lands, and would not convert Farmland to non-agricultural uses.

6.3.4.2.9 Visual Quality. Implementation of the design measures and mitigation for the proposed Project, including the overhead 34.5-kV and 230-kV transmission lines would result in less than significant impacts to visual resources. Under Alternative 3, the undergrounding of the 34.5-kV and 230-kV transmission lines would eliminate the transmission line structures from view, and therefore, would result in less impact to visual

resources compared to the proposed Project. The following discussions present a visual assessment for both the 34.5-kV and 230-kV transmission line.

34.5-kV Transmission Lines. Alternative 3 would involve undergrounding almost all of the proposed 34.5-kV lines (approximately 86 out of 90, 60-foot tall wooden poles) on the site and across SR-138 (near the intersection of SR-138 and 170th Street West) (refer to Figures 4.4-1A and 4.4-4). However, the 34.5-kV lines would still need to be installed above ground across 170th Street West between the on-site substation and the O&M building, since underground lines cannot cross the buried LADWP aqueduct pipeline (located along the west side of 170th Street West). The 34.5-kV lines would also be overhead where the lines would cross state jurisdictional drainages (i.e., Drainage A) to avoid impact to the drainage. The number of transmission poles and conductors would be substantially reduced under this alternative, particularly along the east side of 170th Street West (north and south of SR-138), and therefore the long-term visual impact of the Project during operational phase would be reduced under this alternative.

230-kV Transmission Line. Alternative 3 would involve undergrounding the proposed on-site/off-site 230-kV line in Los Angeles County within the site north of the substation and along the east side of 170th Street West public road ROW. Undergrounding of the line would eliminate 19 single-circuit steel poles (typically 85 to 120 feet high) and related aboveground conductors within the Los Angeles County portion of the transmission line route. This alternative would be expected to reduce the visual impacts of the proposed overhead 230-kV line associated with the proposed Project, especially for the several residents present along 170th Street West. The closest residence (refer to Figure 3-1; R-5) is approximately 330 feet east of the proposed and alternative 230-kV line along the east side of 170th Street West in Los Angeles County. No significant visual impacts would result from the proposed overhead 230-kV transmission line, however, undergrounding the line under Alternative 3 would reduce visual impacts.

Alternative 3 would reduce visual impacts associated with the proposed Project's overhead transmission lines. Similar to the proposed Project, Alternative 3 would result in less than significant visual impacts with implementation of the same mitigation presented in Section 5.10 for the proposed Project.

6.3.4.2.10 Traffic and Access. Construction and operation of the proposed Project would result in less than significant impacts to the study area roadway and intersections LOS, emergency access, and the existing pavement with mitigation. The 34.5-kV line installation under SR-138 would be accomplished via horizontal directional drill (or jack and bore) and would not be expected to disrupt traffic during installation activities. The 34.5-kV circuits to be installed across 170th Street West would be above ground (similar to the proposed Project), and would require temporary lane closures until stringing the lines across this 2-lane

County roadway was complete; it is expected that this could be accomplished without significant traffic delays. Importing of approximately 660 cubic yards of engineered backfill for placement around the underground conductors would result in approximately 33 additional truck trips (round trip) over the construction period. The workforce required for undergrounding the additional 3 miles of 34.5-kV lines on the site under Alternative 3 would be essentially the same as assessed for the proposed Project.

Undergrounding of the 230-kV transmission line over the assumed 6-month construction period (Months 5-10) would involve an average of approximately 6 truck deliveries per work day (12 one-way truck trips per day) for transport of excess conduit bank/vault excavation material to the Project site and for import of thermal concrete backfill.

Under Alternative 3, the peak additional workforce relative to the proposed Project is estimated to be 23 and peak truck trips are estimated at 20 (60 passenger car equivalents [PCE]) per work day. Therefore, the estimated total peak additional trips per day are 83 or 166 one way trips. The Traffic Impact Analysis presented in Appendix G of this Draft EIR and Section 5.11 (Traffic and Access) assesses traffic impacts based on a worst-case Project traffic generation scenario of 498 roundtrips or 996 one-way trips per day (combined workforce and truck trips) in Month 15 of the overall 38-month construction period for the Project. Under Alternative 3 which involves additional truck trips and workforce, as applicable, for Months 5-10, the worst case Project traffic generation would be 411 roundtrips or 822 one-way trips. These trip forecasts for Alternative 3 are below the worst-case traffic numbers (i.e., 996 one way trips) already assessed for the proposed Project and found to be less than significant relative to reduction in levels of service on affected roadways, intersections, etc. Therefore, traffic impacts under Alternative 3 directly related to workforce and truck trips would be less than significant, but greater than for the proposed Project.

The 230-kV and 34.5-kV line installation would require temporary road closures at each of the three above ground crossings of 170th Street West to install the risers and string the lines across the roadway. Additionally, installation of the underground 230-kV conduit bank and vaults along the east side of 170th Street West would entail larger work areas (25-feet wide from the Project site to approximately the Los Angeles/Kern County line) near the outer edge of the public road ROW, which would potentially require longer temporary closure of the northbound lane of 170th Street West compared with the proposed Project. However, with implementation of Mitigation Measure 5.11-1 (Provide Adequate Worksite Traffic Control), traffic impacts associated with construction and operation of Alternative 3 would not be expected to be significant.

In summary, Alternative 3 would result in increased impacts to traffic and access compared with the proposed Project. However these impacts would be reduced to less than significant

levels with implementation of the mitigation identified in Section 5.11 for the proposed Project.

6.3.4.2.11 Fire and Sheriff Protection Services. The proposed Project would result in less than significant impacts to fire and sheriff protection services, and with Mitigation Measure 5.11-1, Provide Adequate Worksite Traffic Control, would not result in significant impacts to emergency access. Alternative 3 would result in larger and more extensive work areas along the transmission line route in Los Angeles County, and thus would have the potential to obstruct emergency access during construction. Implementation of traffic mitigation (Mitigation Measure 5.11-1, Provide Adequate Worksite Traffic Control) would reduce Alternative 3 impacts to less than significant; however, impacts would be greater than for the proposed Project.

The proposed Project and Alternative 3 would comply with federal, state, and Los Angeles County ordinances for fire protection. This, combined with the measures identified in Section 5.4 (Fire Hazards), would reduce any potential impacts related to fire services to a level of less than significant. Project-related traffic would not be anticipated to have a significant impact on local intersections and road segments and, therefore, effects to LACFD staffing and response times would be less than significant. Construction and operational workforce characteristics would not be expected to relocate to the Project area for residence. As a result, the Project would not be expected to cause a significant increase in the population of the Project area. Employees are planned to be hired from the available local workforce, and would not be expected to result in significant changes to the local population that would increase the level of demand on law enforcement services. Installation of the 34.5-kV underground facilities on the Project site within permanent access road and fire breaks would not substantially affect the Project fire hazard or law enforcement risks. Implementation of Alternative 3 would not be expected to affect the Project level of fire or sheriff service demands. Similar to the proposed Project, impacts would remain less than significant for Alternative 3 during both the construction and operational phases.

6.3.4.2.12 Utilities. The proposed Project would result in less than significant impacts to water supply, utility and public service providers, and solid waste. Implementation of Alternative 3 would slightly increase construction water use for fugitive dust control during underground transmission line excavation activities compared with the proposed Project. The impact of the increased water use under Alternative 3 would not be considered significant due to the limited water application during excavation work and the temporary nature of the construction activity. Other aspects of utility services would be expected to remain similar between Alternative 3 and the proposed Project, as assessed in Section 5.14 (Utilities). There is no planned need for gas service, and electric power supply from the existing grid is anticipated to be limited. Waste generation would be minimized by recycling, and off-site disposal requirements would not be expected to be significant. Potential impacts to utilities

from this alternative would be slightly greater than the proposed Project due to the increased construction water use during excavation, but would remain less than significant. As with the proposed Project, impacts to utility services during the operational phase for Alternative 3 would be less than significant.

6.3.4.2.13 Environmental Safety. The Project site and off-site transmission line route under the proposed Project are not on a known list of contaminated sites, and implementation of mitigation measures in the event that contaminated soils are encountered during construction would reduce effects to less than significant. Hazardous materials used during construction and operation would be managed through hazardous materials and hazardous waste management programs such that potential effects would be less than significant. Use of hazardous materials during construction and operation of Alternative 3 would be similar to that used for the proposed Project and no significant impacts are anticipated. Implementation of Alternative 3 would increase excavation activities associated with 34.5-kV and 230-kV line installation, and therefore, the potential for encountering potential soil contamination would increase relative to the proposed Project. Although Alternative 3 would increase potential impacts from existing soil contamination compared to the proposed Project, effects would remain less than significant with implementation of the mitigation presented in Section 5.15 (Environmental Safety) for the proposed Project. Additionally, the increased disturbance areas in the public road ROW under Alternative 3 have the potential to result in greater effects to emergency access and evacuation routes during the construction phase compared with the proposed Project. As a result, Alternative 3 would result in potentially increased impacts compared to the proposed Project, but would remain less than significant with mitigation (refer to Section 5.11, Traffic and Access).

Under Alternative 3, electric and magnetic field (EMF) levels would be less than for the proposed Project. The electric field would be effectively shielded along portions of the transmission lines that are constructed underground. The calculated maximum magnetic field for the underground 230-kV line under Alternative 3 is 76 milligauss (MG) (refer to Figure 6-4) versus 79 MG for the proposed overhead 230-kV line (see Figure 4.4-8). Similar to the proposed Project, EMF levels for Alternative 3 would be consistent with California Public Utilities Commission policies which consider protection of public health among other factors, and impacts would be less than significant.

6.3.4.2.14 Land Use. The proposed Project is considered a utility installation allowable under the site's N-1 land use designation with the issuance of a Conditional Use Permit. Alternative 3 is similarly considered a utility installation, and implementation of the alternative would result in land use impacts similar to those that would occur for the proposed Project. The land use analyses presented in Section 5.16 (Land Use) also apply to Alternative 3. Thus, impacts related to zoning or land use inconsistencies would remain less than significant for this alternative. However, because the underground transmission line

conductors would be encased in concrete to within 12 inches of the ground surface, future land uses (post-project) over the conduit bank and access vaults (including agricultural operations) would be permanently limited (approximately 3.1 acres) in that surface uses would be constrained due to the close proximity of the concrete backfill and restriction on surface uses to protect the integrity of the underground conduit.

Proposed SEA #11. The underground transmission lines associated with Alternative 3 would not be located within a designated SEA. The County of Los Angeles is undergoing a General Plan Update Program, and released a draft Significant Ecological Areas Policy Map in 2008. Based on the draft SEA areas, the off-site portion of the underground 230-kV transmission line (within the Los Angeles County public road ROW) may traverse approximately 0.25 mile of the draft Joshua Tree Woodland Habitat (JTWH) SEA #11 (note: draft SEA #11, if approved, would be a modified version of the existing SEA #60).

The Antelope Valley Areawide General Plan requires review for SEA compliance with designated or potential SEA areas based on the following criteria, as analyzed for Alternative 3 (analyses of SEA compliance for the proposed Project are provided in Table 5.16-1):

Criteria A: The development is designed to be highly compatible with biotic resources present, including the setting aside of appropriate and sufficient undisturbed areas. The underground 230-kV transmission line ductbank and associated vaults would be located within the 170th Street West public road ROW, and would traverse within the draft SEA #11 for approximately 0.25 mile on the east side of 170th Street West to just south of West Avenue B (Figure 5.7-10). No Joshua trees are located within the public road ROW along this segment, as shown on Figure 5.7-8A; hence, no Joshua trees would be removed during construction of the underground transmission facilities. Following construction, the disturbed areas would be revegetated with native vegetation (grasses and/or forbs). The surface expression (i.e., visible portion) of the underground ductbank within the applicable draft SEA #11 area would be one manhole located directly above the ductbank vault (Manhole #6; see Figure 6-3), which would provide maintenance access to the vault, as described in Section 6.3.4.1.1. The manhole access points would be constructed within the same construction envelope in the public road ROW as the ductbank and vaults, and would not result in removal of Joshua trees. During normal operation, the underground transmission line would operate passively, and would not require active maintenance. In conclusion, the underground transmission facilities would be consistent with this criterion in the event that the draft SEA #11 boundaries are adopted.

Criteria B: The development is designed to maintain waterbodies, watercourses, and their tributaries in a natural state. No waterbodies, watercourses, or their tributaries are located within the portion of SEA #11 that would be traversed by the underground

transmission line. This criterion is not applicable to the underground transmission line where it traverses proposed SEA #11.

Criteria C: The development is designed so that wildlife movement corridors (migratory paths) are left in a natural and undisturbed state. The underground transmission line and vaults would be buried, with the exception of the vault access manholes, which would be constructed low to the ground surface and located at approximately 2,000-foot intervals along the overall route. As a result, the underground transmission line and associated facilities would not create obstructions to impede wildlife movement, and would be consistent with this criterion.

Criteria D: The development retains sufficient natural vegetative cover and/or open spaces to buffer critical resource areas from the proposed use. The underground transmission line route would be located within the existing public road ROW in Los Angeles County, and following construction, would be subject to a vegetation management program. As a result, the underground transmission line would comply with this criterion in the event that the draft SEA #11 boundaries are adopted.

Criteria E: Where necessary, fences or walls are provided to buffer important habitat areas from development. The underground transmission facilities would be largely buried; therefore, the facilities would not require fences or walls to buffer the habitat areas. The manhole access areas would not require active work during normal operations, and as a result, would not be anticipated to disrupt habitat areas. Therefore, since the underground transmission facilities would cause minimal if any disturbance to the habitat areas, fences or walls would not be necessary to buffer the draft future SEA #11 area in the event that the draft SEA boundaries are adopted.

Criteria F: Roads and utilities serving the proposed development are located and designed so as not to conflict with critical resources, habitat areas, or migratory paths. The underground transmission facilities would be located within the existing public road ROW, and would not require additional access areas. As discussed previously, the underground transmission facilities would not remove Joshua trees or impede wildlife movement. As a result, the underground transmission line would comply with this criterion in the event that the draft SEA boundaries are adopted.

Criteria G: Clustering of structures is utilized where appropriate to assure compatibility with the biotic resources present. Since the transmission line facilities would be placed underground, this criterion is not applicable.

In summary, as with the proposed Project, implementation of Alternative 3, while more impactful than the proposed Project due to the increased construction disturbance area, would

be expected to be consistent with applicable Antelope Valley Areawide General Plan criteria for designated and potential SEA areas (i.e., SEA #11).

6.3.4.2.15 Global Climate Change. Under the proposed Project, Project-related greenhouse gas emissions during construction and operation would not exceed CARB reporting thresholds for stationary sources. Therefore, the proposed Project would result in less than significant impacts, and would also be consistent with Assembly Bill (AB) 32 and other renewable energy production goals at the federal and state levels. Alternative 3 would result in increased generation of equipment tailpipe emissions compared to the proposed Project due to the additional ground disturbance, excavation activities, and truck traffic associated with undergrounding the transmission facilities. Specifically, Alternative 3 would involve: increased duration of construction (approximately 6 additional weeks); increased site and subsurface disturbance (estimated additional excavation of approximately 7,871 cubic yards for the 34.5-kV lines and the 230-kV line); increased truck traffic associated with hauling excess material from underground 230-kV excavations and import of thermal concrete backfill. These construction efforts would result in an associated temporary, but insignificant, increase of CO_2e greenhouse gas emissions, and impacts would be less than significant with implementation of the mitigation identified in Section 5.6 (Air Quality) for the proposed Project. Operation of the proposed overhead and alternative underground 34.5-kV and 230-kV lines would have similar and insignificant impacts on greenhouse gas emissions as assessed in Section 5.17 (Global Climate Change).

Alternative 3 would result in the same potential beneficial impacts related to global climate change as the proposed Project during the operational phase (refer to Section 5.17 for more information).

6.3.4.2.16 Noise. As assessed in Section 5.18, the proposed Project would result in potentially significant, but mitigable noise-related impacts during construction due to pile driving activities on the facility site. The predominant noise source associated with the overhead transmission line construction is the corner-mount pole hole auger/pressure digger; however, this equipment would not exceed noise thresholds for sensitive receptors in Los Angeles County. Potential differences in noise impacts between the proposed Project and Alternative 3 would be associated with the underground 34.5-kV and 230-kV transmission line construction. Alternative 3 would increase ground disturbance areas, construction equipment use, and duration of construction activities along 170th Street West. Construction of the underground 34.5-kV transmission lines at the Project site would not result in increases in noise generation at sensitive receptors due to the distance of over 1 mile from 34.5-kV undergrounding activities under this alternative and the closest sensitive receptor. Construction of the 230-kV transmission line segment along 170th Street West could result in additional noise impact to residential uses (e.g., residence R-5 is located approximately 330 feet east of 170th Street West in Los Angeles County as shown on Figure 3-1) along 170th

Street West. These noise receptors would be subjected to higher noise levels and longer durations of noise (approximately 6 additional weeks) during construction of the undergrounded 230-kV transmission line. Construction activities would comply with local noise ordinance restrictions on operating hours and construction equipment would be fitted with appropriate mufflers as defined in Section 5.18 (Noise). As such, the short-term and transient increases in noise generation associated with Alternative 3 would be greater than for the proposed Project, but would remain less than significant with mitigation for this alternative.

During the operational phase the underground 230-kV transmission line would result in less corona noise than the proposed overhead line. The underground line would reduce the expected overhead line corona noise from 17 dBA under fair weather conditions to 0 dBA. The corona noise associated with the proposed overhead 230-kV transmission line is expected to peak at 42 dBA under wet weather conditions. In summary, Alternative 3 would result in greater noise impacts during the construction phase but would not generate corona noise during the operational phase. Noise impacts for the proposed Project would be less than significant and would remain less than significant with mitigation for this alternative.

6.3.4.2.17 Changes in Character. The potential changes in character of the Project area (Section 7.0) for the proposed Project would be adverse, but less than significant for the surrounding area. The Project features would be expected to be most apparent in foreground views, where the facility would potentially have a dominant scale to the visual environment. Public viewing locations in the affected foreground views would be along SR-138 and 170th Street West where both roads bisect the Project site.

Under Alternative 3, the undergrounding of the 34.5-kV transmission lines along the east side of 170th Street West and the undergrounding of the 230-kV transmission line along 170th Street West within Los Angeles County would reduce the visual impacts relative to the proposed Project, and thus incrementally reduce the Project impact to the character of the area. Above ground transmission facilities at crossings of 170th Street West would remain, and the 230-kV transmission line would remain above ground within Kern County. Under Alternative 3, Project impacts to the character of the Project area attributable to solar field development would remain unchanged relative to the proposed Project. Therefore, undergrounding of the 34.5-kV and 230-kV transmission lines, as proposed under this alternative, would result in a reduction in the change in the character of the surrounding area relative to the proposed Project. The impact on character of the surrounding area would be lessened and remain less than significant under this alternative.

6.3.4.2.18 Growth-Inducing Impacts. The proposed Project involves construction and operation of a solar photovoltaic electric generating facility and privately-owned transmission lines, and does not involve an increase or expansion of public services or

removal of major obstacles to growth. Therefore, the proposed Project would not result in growth-inducing impacts. Alternative 3, as with the proposed Project, involves construction and operation of a solar photovoltaic electric generating facility and privately-owned transmission lines, and would not involve increases or expansion of public services or removal of major obstacles to growth. As a result, Alternative 3 would also not result in growth-inducing impacts.

6.4 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

In addition to the discussion and comparison of impacts of a proposed project and its alternatives, CEQA Guidelines Section 15126.6 requires that an "environmentally superior" alternative be selected and the reasons for such a selection be disclosed. In general, the environmentally superior alternative is the alternative that would be expected to generate the least amount of adverse impact. In this case, the No Project Alternative would avoid the impacts associated with implementation of the proposed Project and result in the least impacts on the existing environment. However, CEQA Guidelines Section 15126.6(e)(2) states that if the No Project Alternative is the environmentally superior alternative, then the EIR shall also identify an environmentally superior alternative among the other alternatives.

Based on the alternatives assessments presented in Sections 6.2 and 6.3 above, the environmentally superior alternative is considered to be Alternative 2 (Alternative Facility Layout), which reduces potential Project impacts to sensitive biological resources. Although the mitigation measures presented in Section 5.7.5 (Biological Resources) would reduce the impacts to biological resources associated with development of the proposed Project to less than significant levels, the Drainage C, SEA 60, and Joshua tree woodland habitat setback buffers that are included under Alternative 2 are considered to be environmentally superior. However, Alternative 2 would reduce the facility electrical output by 25 MW and is incapable of meeting the Project's contractual electricity delivery obligation under the Project power purchase agreement, and consequently would incur financial penalties under the contract terms of the PPA. As a result, Alternative 2 is not considered to be fully capable of meeting the Project goals and objectives under the Applicant's power purchase agreement.

Alternative 3 would slightly increase biological impacts to Joshua tree woodland, but these would remain less than significant with mitigation. This alternative would reduce visual impacts and resultant changes in character from the on-site and off-site transmission lines, and would not impact the overall Project objectives. Alternative 3 would involve undergrounding of approximately 3 miles of 34.5-kV lines on the Project site and approximately 2.25 miles of 230-kV transmission line on the west and east sides of 170th Street West in Los Angeles County, thereby avoiding the visual impacts associated with transmission facilities (poles and conductors) along 170th Street West, with the exception of three required overhead crossings. Alternative 3 would also avoid the 34.5-kV overhead

crossing of SR-138 near the intersection with 170th Street West associated with the proposed Project. With the exception of three required overhead crossings of 170th Street West, Alternative 3 would also eliminate corona noise and electric fields associated with overhead transmission lines in the vicinity of overhead transmission lines in Los Angeles County. Finally, undergrounding the majority of the proposed overhead 34.5-kV and 230-kV transmission lines would be consistent with Los Angeles County's transmission line undergrounding policy as stated in the Antelope Valley Areawide Plan (adopted by the Board of Supervisors on December 4, 1986) in Chapter V, Policy Statements regarding "physical appearances/community image" (65. Encourage the locating of new power distribution networks… underground in urban areas. Transmission line should be located underground where feasible). Additionally, Alternative 3 would be capable of meeting the Project goals and objectives under the Applicant's power purchase agreement. Given the aforementioned considerations, Alternative 3 is considered to be a both viable and environmentally preferable alternative to the proposed Project.

TABLE 6-1
SUMMARY OF KEY PROJECT ALTERNATIVE CHARACTERISTICS

Alternative	Permanent Project Footprint (Acres)	Solar Field Area (Acres)	Maximum Estimated Cut/Fill and Excavation (Cubic Yards)	MW Output	Permanently Disturbed Joshua Tree Woodland Habitat (Acres)
Proposed Project	751	1,813	249,333[1]	230	0.006
Alternative 1 – No Project	0	0	0	0	0
Alternative 2 – Alternative Facility Layout	668	1,616	221,777	205	0
Alternative 3 – Underground Transmission Lines	754	1,813	257,204[2]	230	0.6

[1]Refer to Table 4.4-1 for breakdown of estimated grading related cut and fill and non-grading related excavations for the proposed Project.

[2] The estimated cut and fill/excavation quantities for the underground 230-kV and 34.5-kV transmission line components are approximately 6,880 and 2,350 cubic yards, respectively, for a total of 9,230 cubic yards. The incremental cut and fill/excavation required under Alternative 3 relative to the proposed Project is approximately 7,871 cubic yards since the proposed Project includes approximately 1,359 cubic yards of excavation for overhead pole foundations that would not be required under Alternative 3.

TABLE 6-2
COMPARISON OF ENVIRONMENTAL IMPACTS FOR PROJECT ALTERNATIVES

	Impact Conclusions by Alternative and Issue Area (Impact Level Relative to Proposed Project)[1,2]				
	Proposed Project	Alternative 1 – No Project	Alternative 2 – Alternative Facility Layout	Alternative 3 – Underground 34.5-kV and 230-kV Transmission Lines	Impacts Less Than Significant After Incorporation of EIR Mitigation?
5.2 Geotechnical Hazards	PS	NA	PS (=)	PS (+)	Yes; all alternatives.
5.3 Flood Hazards	PS	NA	PS (=)	PS (+)	Yes; all alternatives.
5.4 Fire Hazards	PS	NA	PS (=)	PS (-)	Yes; all alternatives.
5.5 Water Quality	PS	NA	PS (=)	PS (+)	Yes; all alternatives.
5.6 Air Quality	PS	NA	PS (-)	PS (+)	Yes; all alternatives.
5.7 Biological Resources	PS	NA	PS (-)	PS (+)	Yes; all alternatives.
5.8 Cultural and Paleontological Resources	PS	NA	PS (-)	PS (+)	Yes; all alternatives.
5.9 Agricultural Resources	PS	NA	PS(=)	PS(+)	Yes; all alternatives.
5.10 Visual Qualities	PS	NA	PS(-)	PS(-)	Yes; all alternatives.
5.11 Traffic and Access	PS	NA	PS (=)	PS (+)	Yes; all alternatives.
5.12 Fire Protection Services	LTS	NA	LTS (=)	LTS (=)	Yes; all alternatives.
5.13 Sheriff Services	LTS	NA	LTS (=)	LTS (=)	Yes; all alternatives.
5.14 Utilities	LTS	NA	LTS (=)	LTS (=)	Yes; all alternatives.
5.15 Environmental Safety	PS	NA	PS (-)	PS (+)	Yes; all alternatives.
5.16 Land Use	PS	NA	PS (=)	PS(+)	Yes, all alternatives.

TABLE 6-2 (CONTINUED)
COMPARISON OF ENVIRONMENTAL IMPACTS FOR PROJECT ALTERNATIVES

	Impact Conclusions by Alternative and Issue Area (Impact Level Relative to Proposed Project)[1,2]				
	Proposed Project	Alternative 1 – No Project	Alternative 2 – Alternative Facility Layout	Alternative 3 – Underground 34.5-kV and 230-kV Transmission Lines	Impacts Less Than Significant After Incorporation of EIR Mitigation?
5.17 Global Climate Change	LTS	NA[3]	LTS (+)	LTS (+)	Yes; all alternatives. However, Alternative 2 would reduce the potential GHG emission reductions associated with the proposed Project by reducing the amount of renewable energy potential at the site.
5.18 Noise	PS	NA	PS (-)	PS (-)	Yes, all alternatives

1 Impact levels relative to proposed Project are as follows: (+) = greater impact than proposed project; (=) = same impact; and (-) = less impact than proposed Project.

2 S = Significant; PS = Potentially Significant; LTS = Less Than Significant; and NA = Not Applicable.

3 The No Project Alternative would not directly result in GHG emissions but would preclude the estimated Project-related offset of over 196,000 metric tons of CO_2e per year that the proposed Project would save relative to current electrical grid generation at an equivalent electrical output.

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T:\Ladd\NextLight\ADEIR#5\Alternatives\209-019F

Alternate Setback (250 feet) from SEA#60 Boundary

Proposed 230 KV Transmission Line (approx 3.5 miles north)

180TH STREET WEST NOT IMPROVED

170TH STREET WEST

175TH STREET WEST NOT IMPROVED

155TH STREET WEST NOT IMPROVED

160TH STREET WEST NOT IMPROVED

WEST AVENUE C

WEST AVENUE C-8 (NOT IMPROVED)

STATE HIGHWAY 138 (WEST AVENUE D)

7869'–1"

2577'–9"

2645'–4"

2635'–2"

5288'–10"

5288'

7972'–1"

5353'–2"

214'

250'

67'–6" (TYP)

1257'–6"
68 TRACKER UNITS (MAX)

Joshua Tree Recruitment Avoidance Area

Drainage D

100-ft wide

O&M Facility (see Figure 4.4-5A)

Substation (see Figure 4.4-5B)

Water Tank

Proposed Water Well

Horizontal Trackers*

Drainage A

Proposed Water Line

Drainage B

HIGHWAY CROSSING

Existing Wells

Existing Ranch Buildings to be Removed

Site Boundary

Permanent Internal Access Roads

30' (TYP)

2717'–1" (MAX)

1500'

Alternate Setback (1500 feet) from Drainage C

North Creek Bank

Drainage C

FEMA ZONE X, SHADED SEE NOTE 2 TYPICAL

FEMA ZONE A

FEMA ZONE X, UNSHADED

CDFG

SBOK

S=0.8%

S=1%

S=0.7%

S=1.2%

S=3%

* Horizontal trackers will be used as indicated if tracker technology is selected. If fixed-tilt panels are selected, then the fixed-tilt panels, which have lower elevational relief compared to tracker units, will be used uniformly across the site.

LEGEND

- FEMA FLOOD PLAIN. THIS SURVEY IS BASED ON GRID COORDINATES DERIVED FROM A GPS SURVEY PROVIDED BY **WESTWOOD PROFESSIONAL SERVICES**
- FENCE
- 34.5 KV LINE
- 230 KV LINE
- PROPOSED 8" WATERLINE
- SETBACK AND SHEET PILING (CUT OFF WALLS) ALONG DRAINAGE A
- LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS EASEMENT
- CDFG — CALIFORNIA DEPARTMENT OF FISH AND GAME JURISDICTIONAL DRAINAGE AREA
- S=0.9% — POST-DEVELOPMENT DRAINAGE FLOW DIRECTION AND SLOPE
- W — EXISTING WATER WELL TO REMAIN
- R — ELECTRICAL RISER
- MAIN PROJECT ENTRY
- SECONDARY PROJECT ENTRY
- S — SUBSTATION
- SOLAR ARRAY (PV PANELS)
- ADDED ALTERNATE SETBACK AREAS THAT WOULD NOT BE DEVELOPED

NOTES:

1. THE PROPOSED ARRAY LAYOUT SHOWN IS SUBJECT TO FINAL DESIGN & VERIFICATION OF ACTUAL SITE CONDITIONS.
2. ZONE X, SHADED AREA BETWEEN LIMITS ARE AREAS OF 0.2% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT. OUTSIDE LIMIT AREAS, ARE AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCES FLOOD PLAIN
3. ZONE A AREAS WITH A 1% ANNUAL CHANCE OF FLOODING AND A 26% CHANCE OF FLOODING OVER THE LIFE OF A 30-YEAR MORTGAGE. BECAUSE DETAILED ANALYSES ARE NOT PERFORMED FOR SUCH AREAS; NO DEPTHS OR BASE FLOOD ELEVATIONS ARE SHOWN WITHIN THESE ZONES
4. DECLINATION AT THE INTERSECTION OF HWY 138 & 170TH W. STREET
5. THIS DRAWING IS A REVISION TO SUNPOWER AV SOLAR RANCH ONE FACILITY SITE PLAN, AND MADE PER THE DIRECTION OF NEXTLIGHT RENEWABLE POWER, LLC

N

0 800 1600

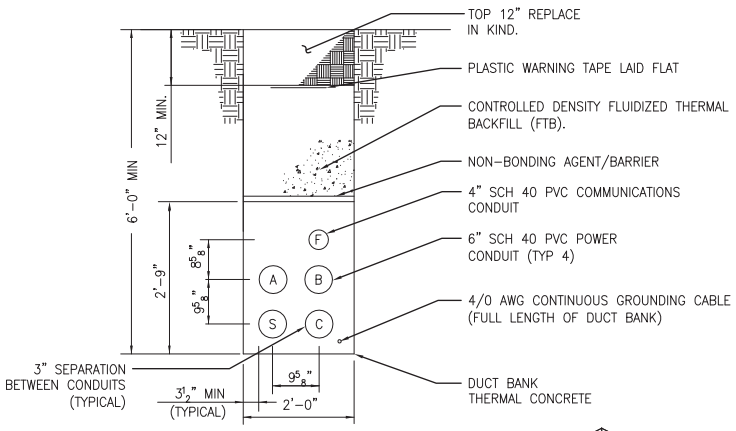
Source: Psomas and Patch Services Dated 2010 Adapted from Patch Drawings D-5408-2014 and D-5408-2001; NextLight 2010

AV Solar Ranch One EIR

Figure 6-1. ALTERNATE LAYOUT WITH INCREASED SETBACKS

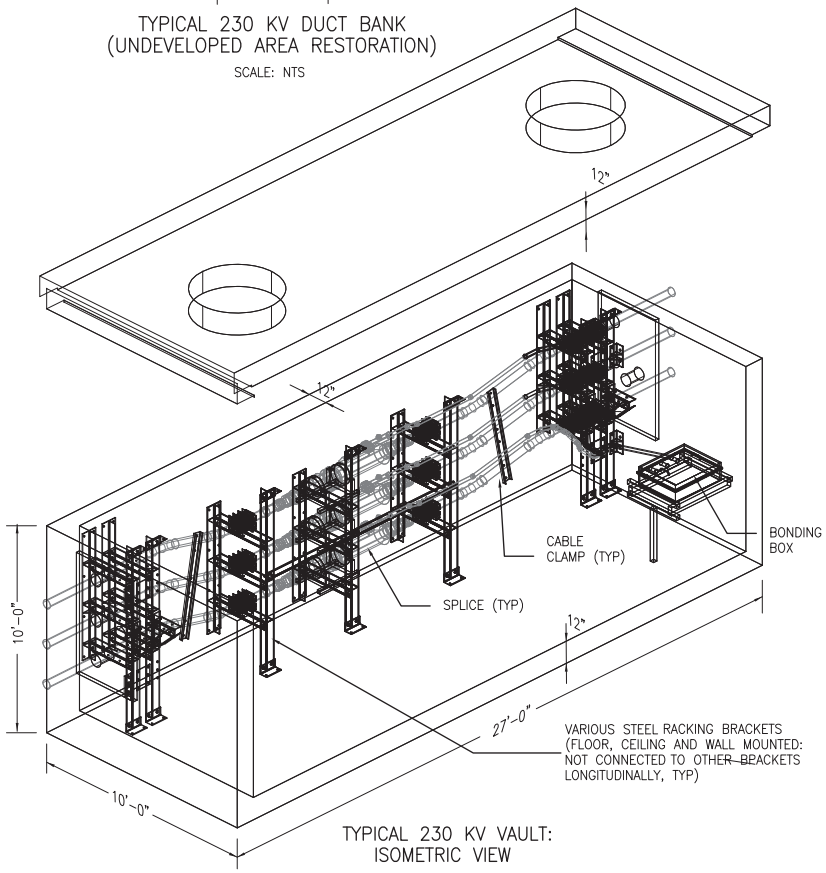
2010

T/Ladd/NextLight/ADEIR#5/Alternatives/410-023A

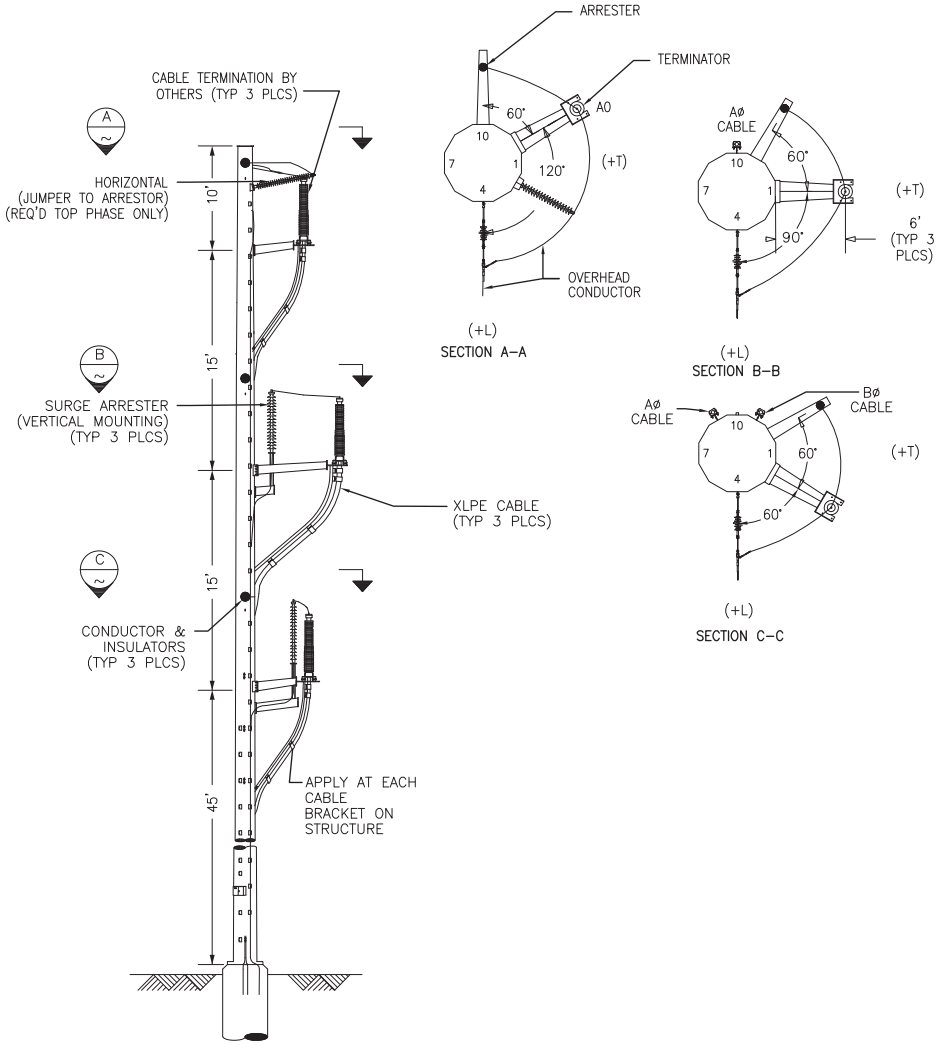


TYPICAL 230 KV DUCT BANK
(UNDEVELOPED AREA RESTORATION)

SCALE: NTS



TYPICAL 230 KV VAULT:
ISOMETRIC VIEW



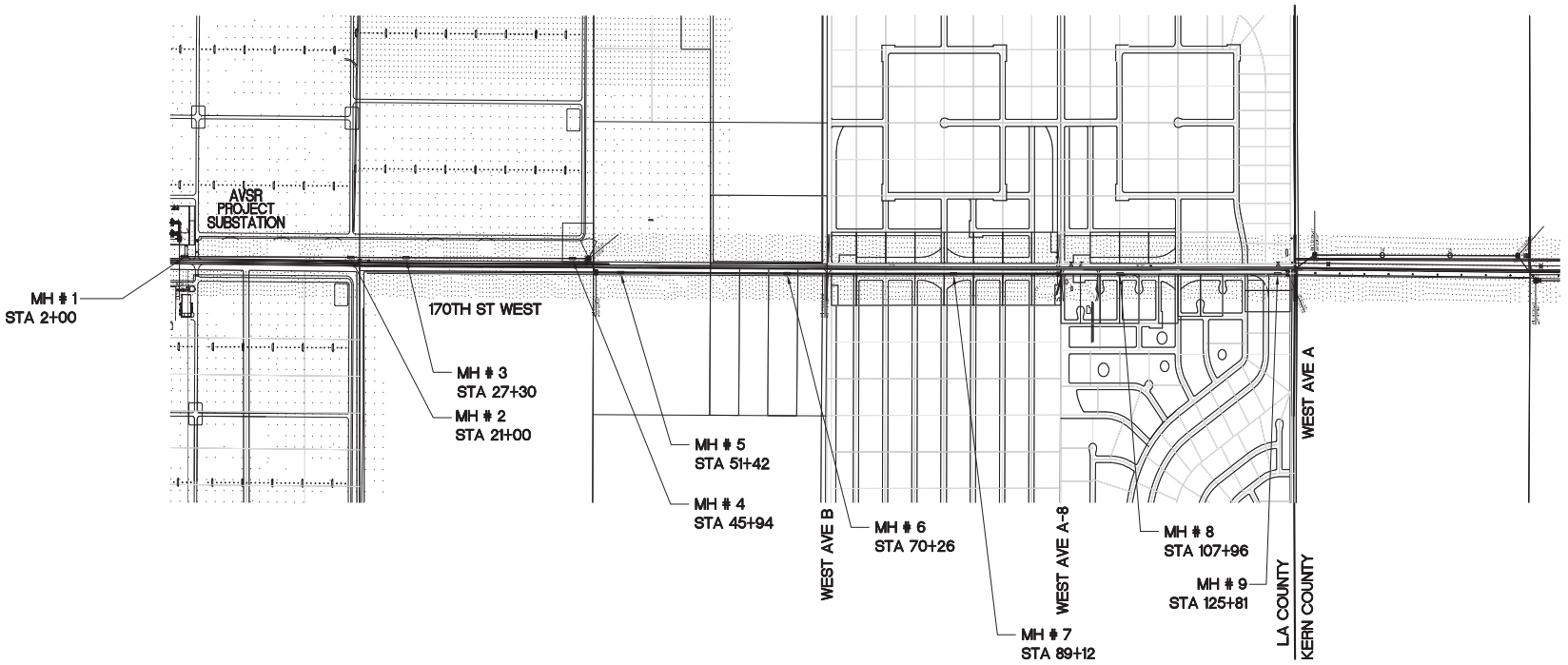
230 KV RISER STRUCTURE WITHOUT DISCONNECT

WITH ARM SUPPORTS FOR TERMINATORS AND ARRESTORS IN VERTCIAL POSITIONS

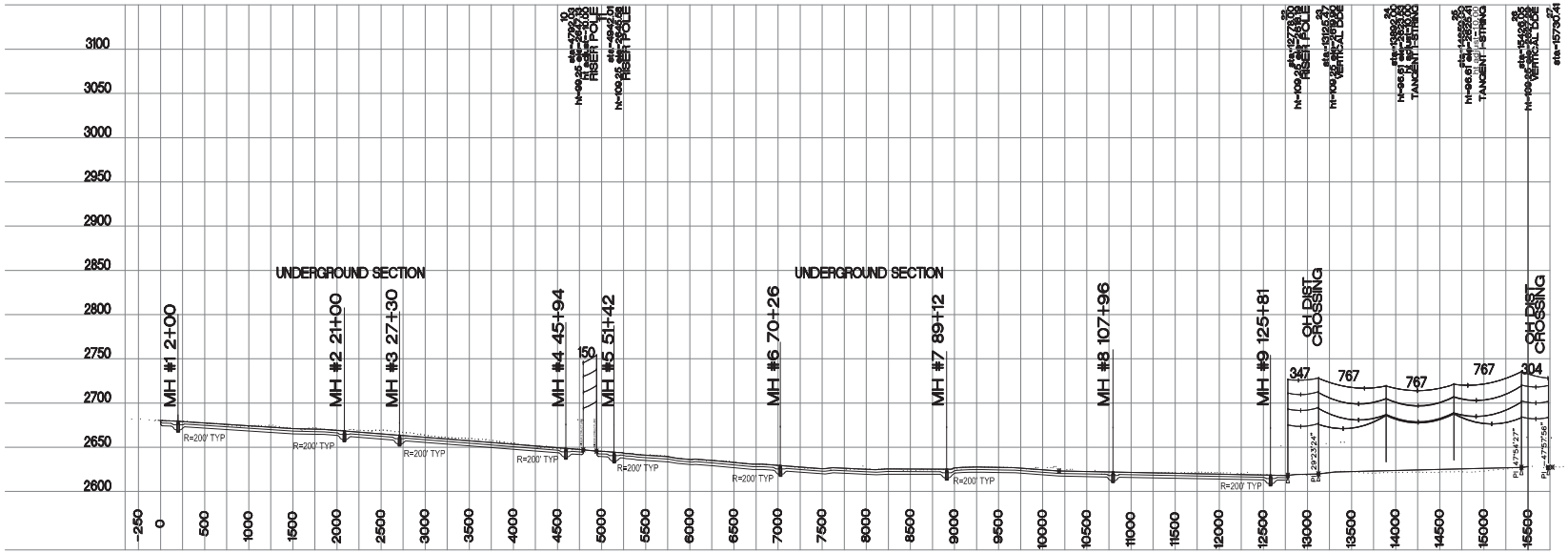
PRELIMINARY

Source: TriAxis Engineering Co. Dated 2010	**AV Solar Ranch One EIR**	**Figure 6-2.** CONCEPTUAL 230 kV UNDERGROUND VAULT AND RISER DETAILS (ALTERNATIVE 3)	2010

T/Ladd/NextLight/ADEIR#5/Alternatives/410-024A



Note:
MH = Manhole (for underground vault access at each location)



PRELIMINARY

Source: TriAxis Engineering Co. Dated 2010	**AV Solar Ranch One EIR**	**Figure 6-3.** CONCEPTUAL 230 kV UNDERGROUND TRANSMISSION LINE ROUTE AND VAULT LOCATIONS (ALTERNATIVE 3)	2010

SECTION 7.0
OTHER CEQA CONSIDERATIONS

This chapter of the EIR addresses other CEQA considerations (change of character, growth inducement, and summary of significant unavoidable impacts) for the proposed AV Solar One Project (Project).

7.1 CHANGE OF CHARACTER

The Project is located within the unincorporated areas of Los Angeles and Kern counties, in the Antelope Valley. The Antelope Valley region is located at the southwestern end of the Mojave Desert, and features a high desert climate and rural character. The Valley also encompasses diverse vegetative communities, geologic formations, and climatic conditions, including the Angeles National Forest and the Liebre and Sierra Pelona mountain ranges. In Los Angeles County, land uses in the Antelope Valley reflect several objectives: protection of sensitive natural biotic communities; preserving the character of rural communities; provision for the urban expansion needs of Southern California; supplying lands for agricultural production; and meeting the nation's need for military facilities (LACDRP 2009). In Kern County, land uses in the Antelope Valley are largely open, undeveloped areas consisting of desert flora and agriculture. Two major thoroughfares provide access to the Antelope Valley. Interstate 5 runs through the far western border of the Valley, and SR-14 links the adjacent Santa Clarita Valley just north of the metropolitan Los Angeles to the eastern portion of the Antelope Valley.

7.1.1 Project Site

The Project site vicinity encompasses open land, several residences, an existing SCE high-voltage transmission line, SR-138, and agricultural uses. Three residences are located within approximately 0.4–0.5 mile of the site (refer to Figure 3-1). The proposed Project entails converting former agricultural lands to renewable energy production through use of solar photovoltaic (PV) panels. The Project site is large, as it is located within a property of approximately 2,100 acres. The proposed design involves relatively low-relief solar panels (approximately 12 to 15 feet above ground surface) that are arranged in a symmetrical row pattern.

The existing SCE Antelope-Magunden 230-kV transmission line is located approximately 1.5 miles east of the Project site. This SCE transmission line is anticipated to be upgraded as part of the SCE Tehachapi Renewable Transmission Project Segment 4 activities (refer to Figure 4.6-1). The Project site is situated to the north and south of SR-138, which is a major east-west highway, and connects the two major regional thoroughfares, I-5 and SR-14. SR-138 is not a designated or eligible scenic highway, but serves as an important route for

emergency access and regional traffic. While traveling along the Project boundary, travelers would have indirect and direct views of the site (Figures 5.10-4 and 5.10-6). For viewers that are not immediately adjacent to the site, topography, the concentration of agricultural activities, and other similar vegetative screening in the area would block some portions of the site and create partially screened and interrupted views of the site, which are shown on the Project viewshed analysis (Figure 5.10-1A) and simulations (Figures 5.10-9, 5.10-11, and 5.10-13).

The Project site is approximately 1.5 miles northwest of the Antelope Valley California Poppy Reserve, and approximately 2.5 miles northeast of the Arthur B. Ripley Desert Woodland State Park. Most of the areas within both the parks are obstructed from views of the Project site. Areas where the topography provides a more direct view to the Project site were assessed, and the Project simulations shown on Figures 5.10-9 and 5.10-11 provide the representative views that park visitors and trail enthusiasts would experience at the AVCPR and Desert Woodland State Park, respectively, in the event that they are located at a direct viewing location to the site. As shown, the developed Project would be difficult to discern, and would not significantly detract from the existing visual quality.

As mentioned previously, the Project site vicinity consists of a rural setting, which is further evidenced by the existing Non-Urban 1 (N1) General Plan land use and agricultural zoning (Light Agriculture and Heavy Agriculture) designations assigned to the Project site and surrounding areas. The Project site was formerly used for agricultural production, and current adjacent land uses consist of agricultural uses, open land, scattered residences, an existing SCE high-voltage transmission corridor, SR-138, and 170th Street West. The proposed Project would not result in urbanization of the site. The Project entails solar energy generation using PV technology. The Project would be considered an industrial application due to its production of electricity; however, the facility operates using a passive means of electrical generation, where the PV panels absorb sunlight in order to generate electricity. Unlike conventional power generation methods, the proposed Project would not require combustion or large mechanical processes (for instance, turbines or generators) in order to produce electricity. The Project would also generate minimal air emissions, hazardous materials, and noise, in contrast with many industrial applications.

The developed Project facility would increase the presence of manmade structures with the installation of the solar arrays (maximum height of 15 feet), 20,000 square foot O&M facility (maximum height of about 28 feet), water storage tanks (100,000 and 10,000 gallons), substation, associated electrical equipment, and fencing. The proposed Project includes on-site 34.5-kV transmission lines, which would be similar in appearance to the existing multiple power lines in the project area (shown on Figures 5.10-2 through 5.10-4). However, the overall proposed facility structures are of moderate heights, which would not obscure middle-ground or background views.

Project features would be expected to be most apparent in foreground views, where the facility would potentially have a dominant scale to the visual environment. Public viewing locations in the affected foreground views would be along SR-138 and 170th Street West where both roads bisect the Project site. The proposed site layout includes setbacks from SR-138, which is currently a two-lane highway. The facility fence line is set back approximately 120 feet from the centerline of SR-138 on both site areas north and south of SR-138. The proposed arrays would be further set back by approximately 30 feet from the fence lines, for an estimated total of 150 feet minimum from the centerline of SR-138.

Additionally, the Applicant has committed to several design and enhancement measures as part of the proposed Project to address the foreground views of the facility along SR-138. These features consist of the use of horizontal solar panels having lower elevational relief for approximately 1,000 feet into the solar field beyond the fence line setback north and south of SR-138 (see Figure 4.4-1A), and the installation of a vegetated area (10 feet wide) including Joshua trees and/or other native yucca trees and native shrubs along the outside of the facility fence lines (approximately 2.5 miles) north and south of SR-138. As shown on Figures 5.10-4 (Existing View of KOP #1) and 5.10-5 (Simulated View of KOP #1), the Project's implementation of these design and enhancement features would help screen the panels, provide a continuous view of native vegetation, and maintain views to the distant mountains.

170th Street West experiences a low traffic volume (average daily traffic of 254 vehicles north of SR-138, and 84 vehicles south of SR-138), which indicates a lower viewer exposure to the Project site. The proposed site layout is designed with setbacks on both sides of 170th Street West. As shown on Figure 4.4-1A, the facility fence line is set back from 170th Street West a minimum of 50 feet, and the arrays are additionally set back from the fence line by a minimum of approximately 30 feet. The simulated view of the facility along 170th Street West is shown on Figure 5.10-7. As shown, the developed site would maintain views of wide expanses and the distant mountains.

7.1.2 Off-site Transmission Line

The Project includes construction and operation of an approximately 3.5-mile-long off-site 230-kV transmission line that would be located within, or on private lands adjacent to, the 170th Street West public road right of way (ROW). Similar to the Project site, the proposed transmission line is located within a rural area. The transmission line route traverses agriculture and low density residential land use (Non-Urban, Residential [2.5 and 5 acres/unit], Intensive Agriculture, and Other Facilities) and zoning designations (Agriculture and Estate) that are consistent with rural settings. The land use along the transmission line route is similar to those at and adjacent to the Project site, and generally consists of agricultural or undeveloped land with occasional residences or farm-related structures. Existing power lines along portions of 170th Street West north of the Project site as well as

the SCE transmission corridor generally east of the route have affected the natural scenic character of the roadway and associated views.

The proposed transmission line is considered linear infrastructure, and would not result in urbanization of the proposed route area or in changes to the current land use patterns. While the transmission line poles and conductors would be new structures, portions of areas adjacent to and along the transmission line route contain existing power lines, and an SCE transmission corridor with multiple 230-kV and 500-kV lines is located generally east of the proposed route. As a result, the proposed transmission line would introduce a moderate change to the visual environment in foreground views. Additionally, viewer exposure would be low because of the small number of homes with immediate views of the transmission line features and low number of motorists in the area.

The transmission line features would not substantially detract from the rural character of the surroundings or views of distant mountains, which provide the more scenic aspects in this area. The overall visual quality of the area is considered to be moderate for existing conditions. Refer to EIR Section 5.10 (Visual Qualities) for more information. The transmission line feature would have a low impact to visual unity causing visual quality to be downgraded slightly for affected viewers.

7.1.3 Summary

The proposed AV Solar One photovoltaic facility and the associated 230-kV transmission line would introduce a moderate level of change to the visual character in the Project area due to the installation of the solar array fields, O&M facility, fencing, substation, and associated electrical and transmission structures; however, these would not be characterized as urban uses, and would not change the existing land use patterns in the Project area. As shown, the Project site would not cause substantial effects to background, middle-ground, or foreground views, and the proposed transmission line would be located in an area having existing power and transmission structures. The proposed Project and transmission line would maintain views of the rural landscape and the distant mountains. As a result, the Project would result in an adverse, but less than significant change to character.

7.2 GROWTH-INDUCING IMPACTS

CEQA requires the analysis of a proposed project's potential to induce growth. The CEQA Guidelines (Section 15126.2(d)) identify a project to be growth-inducing if it fosters economic or population growth or the construction of additional housing, either directly or indirectly, in the surrounding environment. New employees hired for proposed commercial and industrial development projects and population growth resulting from residential development projects represent direct forms of growth. A project would indirectly induce growth if would increase the capacity of infrastructure or facilities in an area in which the

public service currently meets demand. Examples of indirect growth-inducing impacts include expansion of urban services into a previously un-served or under-served area, extension of transportation links, or removal of major obstacles to growth.

Typically, the growth-inducing potential of a project would be considered significant if it fosters growth or a concentration of population above what is assumed in local and regional land use plans, or in projections made by regional planning authorities. Significant growth impacts could also occur if the project provides infrastructure or service capacity to accommodate growth levels beyond those permitted by local or regional plans and policies.

7.2.1 Growth Caused by Direct Employment

During construction, the Project construction workforce would consist of laborers, craftspeople, supervisory personnel, support personnel, and construction management personnel. The construction workforce is expected to reach a peak of approximately 341 workers for the concrete ballast construction scenario, or a peak of 453 workers for the pile foundation scenario at the 8-10 MW-per-month construction rate. Based on the proposed Project location, construction workers are expected to originate primarily from Los Angeles and Kern counties.

According to the California Employment Development Department (EDD) Labor Market Information (LMI), Los Angeles and Kern counties experienced unemployment rates of 11.6 and 14.7 percent, respectively, in June 2009 (EDD-LMI 2009). Based on EDD-LMI employment by industry data for June 2009, the preliminary estimates of available construction positions in Los Angeles County were 127,600 jobs. This estimate reflects a 13.9 percent decrease (i.e., loss of 20,600 jobs) compared with construction employment in the prior year (June 2008), where 148,200 construction positions were available in Los Angeles County (EDD LMI 2009).

The EDD-LMI reports that in June 2009, the preliminary estimates of available construction positions in Kern County were 14,700 jobs, which reflects a 12 percent decrease (i.e., loss of 2,000 jobs) compared with June 2008 construction employment totals (16,700 positions).

These data indicate that despite the decrease in construction positions in Los Angeles and Kern counties, the Project construction labor force needed would account for approximately 0.12 percent and 0.16 percent of the employment positions in Los Angeles and Kern counties (combined) for the ballast and pile foundation construction scenarios, respectively. Based on these data, the Project construction workforce needs (approximately 38 months) would be considered negligible compared to the size of the available regional workforce. As a result, construction workers are expected to be hired locally, and workers would not be anticipated to relocate into the Project area during construction. Additionally, based on the above reported figures, construction of the Project may be anticipated to provide employment

SECTION 8.0
MANDATORY FINDINGS OF SIGNIFICANCE

8.1 INTRODUCTION

This section addresses the Mandatory Findings of Significance issues identified in the Initial Study (refer to Appendix A) prepared by the Los Angeles County Department of Regional Planning (LACDRP). The LACDRP determined that under the Mandatory Findings of Significance criteria listed below, the proposed Project may result in potential impacts related to the following disciplines:

Criteria: Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?

- Biological Resources
- Cultural Resources

Criteria: Does the project have possible environmental effects which are individually limited but cumulatively considerable? "Cumulatively considerable" means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.

- Water Quality
- Air Quality/Global Climate Change
- Visual Qualities
- Traffic/Access
- Fire Protection and Sheriff Services
- Utilities
- Land Use
- Agriculture

Criteria: Will the environmental effects of the project cause substantial adverse effects on human beings, either directly or indirectly?

- Geotechnical Hazards
- Flood Hazards
- Fire Hazards
- Environmental Safety
- Noise

In the discussions that follow, potential impacts for each of the above disciplines have been assessed using the criteria specified by the LACDRP.

8.2 IMPACT ASSESSMENT

Criteria: Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?

- **Biological Resources.** As discussed in Section 5.7, Biological Resources, the proposed generating facility would occupy nearly the entire Project site with solar PV panels, buildings, and associated electrical and access-related infrastructure. In total, the proposed Project would permanently remove existing natural habitats within the Project site and proposed transmission line route to allow placement of solar panel footings, access roads, buildings, fire breaks, infiltration basins, and transmission poles and foundations; these areas would not contain natural habitat in the post-Project condition.

  After construction of the proposed Project, a substantial portion of the 2,100-acre Project site would be subject to shading by solar PV panels, and would also be subject to vegetation management standards. The proposed shading and fuel management is expected to substantially affect the habitat quality and species composition of the affected areas. Of the four jurisdictional ephemeral drainages within the Project site, all would be avoided by the Project footprint.

  Alteration of the majority of the site's existing habitat is expected to result in adverse effects on plants and wildlife on-site. The Project site and proposed transmission line route are used by a variety of wildlife, including several special-status birds, and impacts to these species resulting from Project construction, operation, and long-term

maintenance of the proposed facility would occur. Additionally, the site would be fenced for security, and the proposed chain-link perimeter fencing would have the potential to impede wildlife movement in the area. However, the proposed Project includes wildlife-permeable fencing as well as an on-site local wildlife travel route to facilitate wildlife movement on the site.

While some biological resource impacts remain significant following on-site mitigation, off-site mitigation measures have been identified that reduce the significance of all Project impacts to biological resources to less than significant levels. Refer to Section 5.7 of this EIR for more information.

- **Cultural Resources.** Section 5.8, Cultural Resources, concluded that ground disturbing construction activities such as vegetation clearing, grubbing, grading, filling, trenching, and vehicle use have the potential to disturb, damage or destroy known historical or archaeological resources, and thus could result in potentially significant impacts. In addition, undiscovered sites could also be potentially significantly impacted by ground disturbance. Operations would increase the number of people in close proximity to resources and thus increase potential impacts from unauthorized artifact collection, looting, or other intentional or unintentional disturbance to an archaeological site. However, implementation of the cultural resource mitigation measures presented in Section 5.8 is expected to reduce any potential impacts to less than significant levels.

Criteria: Does the project have possible environmental effects which are individually limited but cumulatively considerable? "Cumulatively considerable" means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.

- **Water Quality.** Water pollutants that could be released from development associated with the proposed Project include runoff laden with sediment, vehicle and equipment fluids, household chemicals, trash, landscaping by-products, and other typical urban stormwater pollutants. The National Pollutant Discharge Elimination System (NPDES) was established to regulate stormwater pollution, and all new development including the proposed Project would be required to comply with the conditions of applicable NPDES permits.

  Additionally, such development would be required to be in compliance with the Lahontan Regional Water Quality Control Board (LRWQCB) Basin Plan. The Basin Plan is a regional plan designed to reduce the pollutant levels of receiving waters, and thus is intended to achieve a cumulative reduction in water pollutants. Compliance with the plan would ensure that future development in the proposed Project area would not

substantially contribute to cumulative water quality impacts. Therefore, the proposed Project, in conjunction with other approved and proposed Projects, would not result in a significant cumulative impact on surface water quality (refer to Section 5.5).

- **Air Quality/Global Climate Change.** As discussed in Sections 5.6 and 5.17, cumulative impacts for air quality and global climate change for the proposed Project, when considered with other potential projects, are expected to be less than significant during the construction phase. During operation, the Project would result in less than significant criteria pollutant and greenhouse gas emissions relative to the anticipated generated electrical output. Potential cumulative impacts of the proposed Project with other renewable energy projects proposed in the Project region would be considered to be beneficial and result in a combined substantial reduction in combustion-related emissions relative to an equivalent output from existing electrical grid sources. The proposed Project alone would be expected to reduce CO_2e emissions by over 196,000 metric tons per year compared to traditional fossil fuel (natural gas) generation emissions for an equivalent electrical output. As a result, the Project's incremental contribution to air quality impacts would result in less than significant cumulative effects.

- **Visual Qualities.** Multiple projects are identified in the Project region, which have the potential to result in cumulative impacts to aesthetics when considered together with the proposed Project. Applications for several other renewable energy projects have been submitted to take advantage of the energy transmission infrastructure that is planned in the area. The energy development proposed around the planned SCE Whirlwind Substation and the associated SCE Tehachapi Renewable Transmission Project is likely to combine with the proposed Project to introduce a large amount of scale dominant industrial features to the rural area in southern Kern County. This is likely to permanently change the current, almost exclusively rural character of the general Project area through incremental increases in renewable industrial development. In conjunction with the proposed Fairmont Butte Motorsports Park, which also has scale dominant features, the existing character of the viewshed in the Antelope Valley in northern Los Angeles County would be altered by harder surfaces, unnatural lines and urban colors. This raises the potential for adverse effects to visual quality.

  Due to the extent of proposed development in the Project vicinity, cumulative effects to aesthetics resulting from the combination of these large scale manmade developments could be significant depending on which projects are approved and built as well as their locations and appearance. Direct visual impacts associated with implementation of the proposed Project have been determined to be less than significant in Section 5.10 (Visual Quality) of this EIR relative to the significance criteria utilized in the analysis. The proposed Project's incremental effects on visual quality would not be expected to be

cumulatively considerable or significant for any of the significance criteria used in the visual quality assessment.

- **Traffic/Access.** The AV Solar Ranch One Project traffic construction and operation impacts were conservatively analyzed based on ambient traffic growth, cumulative project traffic, and ambient traffic growth of four percent per year (Section 5.11). These assumptions were used to develop future baseline cumulative conditions from existing intersection traffic count data. This traffic growth assumption was based on the growth forecast for the North County Area from the Los Angeles County Congestion Management Plan (CMP). The traffic study for the AV Solar Ranch One Project built these assumptions into the Project-specific in order to account for potential future growth and traffic conditions through the end of the construction period. As discussed in Section 5.11, the Project would result in less than significant impact to future growth and traffic conditions in the Project region. Project construction impacts to cumulative project effects would be temporary and were determined to be less than significant, based on the analyses of proposed Project design practices with respect to existing conditions and growth forecasts.

  During operation, the Project trip generation would consist of the operations workforce of 16 with occasional service/delivery trips. As discussed in Section 5.11, this trip generation would be low, and the Project would result in negligible trip generation and traffic impacts. As a result, the Project's incremental contribution to cumulative traffic impacts would be expected to be less than significant.

- **Fire Protection and Sheriff Services.** Based on the analyses of the Project impacts to fire protection services (Section 5.12), the Project is anticipated to result in less than significant direct and indirect impacts to fire protection services. The Project would be designed with appropriate fire protection considerations, and would also result in less than significant impacts to staffing and response times. Furthermore, the Project would be required to provide taxes and fees to the County that are designed to address cumulative fire department needs associated with new and existing developments. As a result, the proposed Project would be anticipated to result in less than significant incremental contributions to cumulative fire protection impacts.

  As analyzed in Section 5.13 Sheriff Services, the Project would not cause effects to result in significant demands to sheriff staffing or response times. The Project would also implement site security control, including 24-hour security monitoring in order to prevent potential theft and vandalism activities. Additionally, a portion of the Project taxes levied would be allocated to sheriff services. As a result, construction and operation of the Project would be anticipated to result in less than significant incremental contributions to cumulative fire protection impacts.

- **Utilities.** Section 5.14, Utility Services evaluates the Project effects to utility services, and as discussed, construction and operation of the Project would result in less than significant impacts to governmental and public facilities, which include electricity, gas, and solid waste services. During construction, the Project would follow required measures to prevent construction interference to utility services, and would comply with recycling requirements to minimize solid waste disposal to solid waste facilities. During operation, the Project would provide electricity, and would generate minimal amounts of solid waste. As a result, the Project's incremental contribution to utility service cumulative impacts would be anticipated to be less than significant.

- **Land Use.** As discussed in Section 5.16, there are several other projects under consideration in the general area of the proposed AV Solar Ranch One Project that have the potential to result in cumulative effects with the proposed Project. The proposed Project is one of several proposed renewable development projects that would impact existing and proposed land uses within the general Project area. In addition, the Fairmont Butte Motorsports Park project is proposed within approximately 0.5 mile of the proposed Project on the south side of SR-138. Similar potential impacts can result from these projects as from the proposed Project with respect to consistency with General Plan Land Use plan and policies, and impacts to compatibility with surrounding land uses. All cumulative projects that may be approved and implemented would also assess potential impacts related to land use and planning. With mitigation, the proposed Project was found to have less than significant impacts related to land use, including: zoning on site, consistency with General Plan Land Use Plan intent, dividing an existing community, and impacts to adjacent counties. Therefore, the proposed Project would not be expected to significantly contribute to possible cumulative land use related effects associated with other projects in the Project region (refer to Section 5.16).

- **Agriculture.** As discussed in Section 5.9, the Project is located in a region with significant agricultural uses; however, the Antelope Valley has been historically and is currently also limited by water costs and climatic conditions. The proposed Project would result in the permanent conversion of less than 1 acre of Prime Farmland. The proposed off-site transmission line would result in conversion of a minimal amount (approximately 0.85 acre) of Prime Farmland in Kern County (poles and access pathways). The proposed transmission line would also involve placement of poles (5) with an approximate footprint of 50 square feet each on land that is currently under Williamson Act Contract in Kern County (less than 0.01 acre total). This amount is considered negligible. Regardless, it is expected that the Project will be required to get Kern County approval for placement of transmission facilities on Williamson Act lands. The proposed Project would also result in the conversion of approximately 2,100 acres of former (more than 5 years ago) agricultural land to renewable energy production, thereby precluding possible agricultural production for the planned life of the Project (30 years). The proposed

Project would be expected to contribute to the overall trend of conversion of agricultural lands to other uses in the Antelope Valley when considered together with other potential cumulative projects in the area. Since the Project site has not been used for agricultural production for over 5 years, and because the Project would result in a negligible conversion of Prime Farmland, the Project's incremental contribution to cumulative agricultural impacts is considered less than significant (refer to Section 5.9).

- **Change of Character.** The Project area vicinity consists of a rural setting, which is further evidenced by the existing non-urbanized land use and agricultural zoning designations assigned to the Project area and surrounding areas in Los Angeles and Kern counties. The proposed AV Solar One photovoltaic facility and the associated 230-kV transmission line would introduce a moderate level of change to the visual character in the Project area due to the installation of the solar array fields, O&M facility, fencing, substation, and associated electrical and transmission structures; however, these would not be characterized as urban uses, and would not change the existing land use patterns in the Project area. As shown on the Project visual simulations (Figures 5.10-5, 5.10-7, 5.10-9, 5.10-11, and 5.10-13), the Project site would not cause substantial effects to background, middle-ground, or foreground views, and the proposed transmission line would be located in an area having existing power and transmission structures. The proposed Project and transmission line would maintain views of the rural landscape and the distant mountains. As a result, the Project would result in an adverse, but less than significant change to character.

- **Growth-Inducing Impacts.** The proposed Project involves construction and operation of a solar photovoltaic electric generating facility and a privately-owned, 230-kV high-voltage transmission line. The Project does not involve an increase or expansion of public services or removal of major obstacles to growth. Therefore, the Project would not result in growth-inducing impacts.

Criteria: Will the environmental effects of the project cause substantial adverse effects on human beings, either directly or indirectly?

- **Geotechnical Hazards.** Construction of the proposed Project would involve excavation and grading activities associated primarily with proposed construction of 9,600 planned infiltration basins throughout the solar field for drainage control. The Project site and off-site transmission line route are not located in a known active or potentially active fault zone, seismic hazards zone, or Alquist-Priolo Fault Zone. Additionally, the proposed Project facilities are not located within an area of high landslide potential, high groundwater, or with soils that are susceptible to liquefaction or subsidence. The Project site and transmission line route are not located in areas of known expansive soils and the soil erosion hazards for wind and water are rated low to moderate. No potentially

significant geologic hazards have been identified for construction or operation of the proposed Project, assuming that Project facilities are designed and constructed in accordance with the California Building Code, County standards, and the recommendations in the geotechnical study conducted for the Project. Conformance with the recommendations in the geotechnical study would be ensured by the mitigation specified in Section 5.2. As such, potential impacts related to geologic or geotechnical hazards are expected to be less than significant.

- **Flood Hazards.** The hydrologic Design Concept Report assessment prepared for the proposed Project (PSOMAS 2009) indicates that a substantial portion of the proposed site would be inundated under the County of Los Angeles design storm basis (i.e., 50 year capital flood which assumes that the entire watershed has burned). Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) indicate that only a small area on the southeast portion of the site (Drainage C) would be flooded by the 100-year flood event. The proposed Project includes avoidance of Drainage C and no flood-related impacts related to Drainage C are expected.

  The Design Concept Report prepared by PSOMAS indicates that pre- and post-development flows on the site would be essentially the same (with Project design measures applied).

  The proposed off-site transmission line is located in the FEMA designated 100-year flood plain in Kern County. However, the proposed transmission structure design (tubular steel poles embedded in pier holes with concrete) would not be adversely affected by temporary flooding. In summary, with implementation of the proposed design measures to control flooding and maintain existing drainage patterns and flows, and implementation of the mitigation specified in Section 5.3, potential impacts related to flood hazards are expected to be less than significant.

- **Fire Hazards.** The proposed Project is not located within a Very High Fire Hazard Severity Zone. Vegetation would be managed with consideration of the Los Angeles County Fire Department (LACFD) concerns regarding fuel management. Firewater supplied by on-site groundwater wells (or backup supply) and the 100,000-gallon water tank would be available for responding fire truck use, if necessary. The proposed Project has the potential to create or pose a fire hazard during the construction and operational phases of the Project. However, with implementation of the proposed Fire Protection and Prevention Plan, including conformance with LACFD vegetation management requirements, impacts would be reduced to less than significant levels.

- **Environmental Safety.** Based on land uses in the surrounding area (primarily agricultural and open space) and the limited amount and type of hazardous materials to be

used as part of the proposed Project as well as proposed mitigation measures, no significant impacts associated with environmental safety would be expected to occur as a result of Project implementation. The California Department of Toxic Substances Control (DTSC), LACFD, Kern County Fire Department (KCFD), and the LRWQCB would enforce compliance with regulations related to the storage, transportation, use and disposal of hazardous materials, and thus impacts related to use or management of these materials is not expected to be significant. The Applicant has enrolled in the LACFD Voluntary Oversight Program, and in conjunction with that agency, will remediate any existing on-site soil contamination in accordance with County-approved Phase II requirements.

- **Noise.** Construction of the proposed Project would involve either tracking or fixed-tilt solar PV panels. If fixed-tilt panels are selected, foundations will involve installation of an estimated 465,000, 6-inch-diameter, 10-foot-deep steel piles over the Project site. The piles would be installed over a period of approximately 2½ years using a vertical hydraulic vibratory pile driver with a calculated noise level of 88 dBA at a distance of 50 feet. Without mitigation, installation of piles in the northwest corner of the Project site (only) could exceed Los Angeles County Noise Ordinance Standards for construction noise at sensitive receptors (residences in this case) within 3,000 feet of the pile-driving activity. With implementation of proposed mitigation, this potentially significant impact would be reduced to less than significant. No other potentially significant noise impacts are expected to occur associated with construction or operation of the proposed solar facility or off-site 230-kV transmission line.

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SECTION 9.0
REFERENCES

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SECTION 10.0
ORGANIZATIONS CONSULTED

10.1 INTRODUCTION

In addition to County of Los Angeles departments, the regulatory agencies and organizations listed in the following sections were consulted during preparation of the Draft EIR.

10.1.1 Federal Agencies

The following federal agencies were consulted:

- State Historic Preservation Office
- U.S. Fish and Wildlife Service

10.1.2 State Agencies

The following state agencies were consulted:

- California Department of Conservation
- California Department of Fish and Game
- California Department of Transportation (Caltrans)
- Lahontan Regional Water Quality Control Board
- State Department of Parks and Recreation (including Antelope Valley California Poppy Reserve and Arthur B. Ripley Desert Woodland State Park)

10.1.3 Regional and Local Agencies

The following regional and local agencies were consulted:

- Antelope Valley Air Quality Management District
- City of Lancaster Planning and Development Services
- City of Palmdale Planning Department
- Community of Antelope Acres Town Council
- Kern County Air Pollution Control District
- Kern County Public Works and Planning Departments
- Southern California Association of Governments

10.1.4 Organizations

The following organizations were consulted:

- Desert and Mountain Conservation Authority
- Native American Heritage Commission
- Pacific Gas and Electric Company
- Sierra Club
- Santa Monica Mountains Conservancy
- South Central Coastal Information Center (Cultural Resources)
- Southern California Edison Company

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SECTION 11.0
LIST OF PREPARERS

11.1 INTRODUCTION

URS Corporation prepared this Environmental Impact Report under the direction of the County of Los Angeles Department of Regional Planning. Individuals that were directly involved in the preparation and/or review of this report include the following:

11.1.1 Los Angeles County Department of Regional Planning

Roles: EIR Direction and/or Review

- Paul McCarthy – Supervising Regional Planner
- Kim Szalay – Principal Regional Planning Assistant
- Christina Tran – Senior Regional Planner
- Anthony Curzi – Regional Planning Assistant II

11.1.2 Los Angeles County Department of Public Health

Roles: Project Description Direction and/or Review

- Alfonso Medina – Director, Environmental Protection Bureau
- Ken Habaradas – Manager, Environmental Health Services

11.1.3 Los Angeles County Department of Public Works

Roles: Project Description Direction and/or Review

- Andy Narag, P.E. – Senior Civil Engineer. Land Development Division
- Dennis Hunter, P.E. – Assistant Deputy Director, Land Development Division
- Steve Burger, P.E. – Senior Civil Engineer, Land Development Division
- Amir Ibrahim, P.E. – Senior Civil Engineer, Land Development Division
- Christopher Sheppard, P.E. – Associate Civil Engineer
- Ron Takiguchi, P.E. – District Engineer, Building and Safety Division

11.1.4 Los Angeles County Fire Department

Roles: Project Description Direction

- Roy Dull – Battalion Chief
- James Barger, P.E. – Supervisor

11.1.5 Los Angeles County Significant Ecological Area Technical Advisory Committee

Roles: Biota Report Direction and Review

- Shirley Imsand – SEATAC Coordinator

11.1.6 Antelope Valley Air Quality Management District

Roles: Air Quality Impact Assessment Guidance

- Alan De Salvio – Supervising Air Quality Engineer
- Chris Anderson – Air Quality Engineer
- Bret Banks – Operations Manager

11.1.7 Kern County

Roles: Project Description Direction

- Lorelei Oviatt – Planning Department Division Chief

11.1.8 URS Corporation

Role: EIR Preparation

- Robert Ray – Project Manager
- Jennifer Wu – Deputy Project Manager; Task Leader for Fire Protection Services, Sheriff Services, and Agricultural Resources
- Pell Menk – Deputy Project Manager; Geotechnical Hazards Task Leader; Project Description, Utility Services
- Matt O'Brien – Task Leader for Flood Hazards and Water Quality
- Tricia Winterbauer – Task Leader for Fire Hazards, Environmental Safety, and Phase I Environmental Site Assessment

- Matt Dunn – Task Leader for Air Quality and Global Climate Change
- Christopher Julian – Task Leader for Biological Resources and Biota Report
- John Davis IV – Biota Report Director
- Laurie Solis – Task Leader for Cultural and Paleontological Resources and Phase I Report
- Amy Gramlich – Task Leader for Visual Qualities
- Noel Casil – Task Leader for Traffic and Access
- Jeff Rice – Task Leader for Land Use
- Kimberly Castruita – Land Use
- Mark Weeks – Global Climate Change
- Ron Reeves – Task Leader for Noise
- Doug Kelley – Word Processing Lead and Production Manager
- David Rodrigues – Document Control
- Angela McMurtry – GIS Lead
- Bonnie Ladd – Graphics Manager

11.1.9 Next Light AV Solar Ranch 1, LLC

Role: Applicant and Lead for Project Description

- Roy Skinner – Project Director
- Jack Pigott – Director of Development
- Geoff Baxter, P.E. – Director of Engineering

11.1.10 Patch Services, LLC

Role: Project Description

- Joe Patch, P.E. – Principal
- Ken Horn, P.E. – Project Engineer

11.1.11 Digital Preview

Role: Visual Simulations

- Richard Johnston – Visual Simulations

11.1.12 PSOMAS

Role: Drainage Concept Report

- Erik Winata, P.E. – Project Manager

11.1.13 R. Indigenous Consultants

Role: Native American Survey Report

- Randy Guzman-Folkes – Principal

11.1.14 Tri-Axis Engineering, Inc.

Role: Transmission Engineering

- Mark Petri – Transmission Engineer

11.1.15 Terracon Consultants, Inc.

Role: Geotechnical Investigation

- Patrice Brun – Project Manager
- Scott Nealy, P.E. – Principal

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5.1.2.4 Recreation

The proposed Project does not involve residential development and would not create new demand for recreational resources in the Project region. The CEQA Initial Study determined the proposed Project does not have the potential to require new or expanded recreational facilities for future residents since the Project is intended to generate renewable, solar energy with a long-term operational workforce of only approximately 16 persons.

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