CHAPTER 4.0
SOILS AND GEOLOGY

This chapter describes the existing conditions pertaining to geology and soils and discusses applicable federal, state, and regional regulations pertaining to protection of these resources. This chapter also evaluates the potential environmental consequences that could result from each alternative discussed in Chapter 2 related to exposing people or structures to unfavorable geologic hazards, soils, and seismic conditions.

Public and agency comments received during early public scoping (CPUC 2009) included concerns regarding impacts related to landslide, erosion, earthquakes, and the geology of Stokes Mountain.

4.1 AFFECTED ENVIRONMENT

This section describes the existing condition of the soils and geological resources to identify soil or geological resources that might be affected by the proposed action. For the purposes of the Chapter 4 analysis, the resource study area for estimating direct and indirect effects is the transmission alignment plus a 1,000-foot buffer (i.e., the proposed HCP Permit Area). This study area boundary was selected because the extent of direct and indirect effects on geology and soils would be fairly localized and close to proposed Covered Activity sites.

Regional Geology

The proposed HCP Permit Area is located in the San Joaquin Valley along the southeastern margin of the Great Valley geomorphic province, with eastern portions of the resource study area encroaching into the foothills of the Sierra Nevada province. The Great Valley and the Sierra Nevada are 2 of 11 geomorphic provinces recognized in California. Each province displays unique, defining features based on geology, faults, topographic relief, and climate (CGS 2002). The Great Valley is an alluvial plain approximately 50 miles wide and 400 miles long in the central part of California. The Great Valley's northern part is the Sacramento Valley, drained by the Sacramento River, and its southern part is the San Joaquin Valley, which is drained by the San Joaquin River.

The Great Valley is a trough in which sediments have been deposited almost continuously since the Jurassic age (approximately 160 million years ago). The Sierra Nevada is a tilted fault block nearly 400 miles long. Its east face is a high, rugged multiple scarp, contrasting with the gentle western slope that disappears under sediments of the Great Valley. Deep river canyons are cut into the western slope. Their upper courses, especially in massive granites of the higher Sierra Nevada, are modified by glacial sculpturing, forming such scenic features as Yosemite Valley. The high crest culminates in Mount Whitney with an elevation of 14,495 feet above mean sea level (amsl) near the eastern scarp (CGS 2002).

Faults

The nearest active faults, based on the establishment of State of California Earthquake Fault Zones, are the Pond (or Pond Poso Creek), Kern Front, New Hope, and Premier faults, located approximately 40 miles south of the HCP Permit Area (see Figure 4-1, Seismic Hazards). This is a group of aseismic faults with historic ground rupture attributed to fluid (oil and water) withdrawal rather than tectonic activity. The active Independence fault is located approximately 48 miles east of the resource study area, and the widely known San Andreas Fault is located approximately 70 miles southwest of the resource study area. A northwest-trending, unnamed, obscured (buried) fault is mapped as crossing the eastern portion of the resource study area, northeast of the City of Visalia (Jennings 1994). There is no indication that this fault is active or a potential seismic source.

Soils

According to Matthews and Burnett (1965), the north–south portion of the HCP Permit Area and the westerly portion of the east–west HCP Permit Area are underlain by recent (Pleistocene and Holocene) alluvial fan deposits. The eastern portion of the east–west HCP Permit Area contains areas mapped as metamorphic and granitic rock. This includes a series of rock outcrops.

Quad Knopf (2010) identified 22 soils types within the HCP Permit Area, which are primarily silts, clays, loams, and rocky outcrops. These soil types include the following:

- Riverwash;
- San Joaquin Loam;
- Exeter Loam;
- San Emigdio Loam;
- Porterville Clay;
- Porterville Cobbley clay;
- Grangeville Silt Loam, drained;
- Grangeville Sandy Loam;
- Cibo-Rock Outcrop Complex;
- Greenfield Sandy Loam;
- Vista Coarse Sandy Loam;
- Cieneba-Rock Outcrop Complex;
- Cibo clay;

- Coarsegold-Rock Outcrop complex;
- Lewis Clay Loam;
- Friant-Rock Outcrop Complex;
- Yettem Sandy Loam;
- Wyman Loam;
- Blasingame Sandy Loam;
- Quonal-Lewis Association;
- Tagus Loam; and
- Nord Fine Sandy Loam.

As listed above and based on soil survey information from the U.S. Department of Agriculture (USDA), several of the soils in the resource study area are classified as a loam, sand loam, or silt loam (USDA 2008). A loam is friable soil containing a relatively equal mixture of sand and silt and a somewhat smaller portion of clay. The mixture of sand and finer-grained materials in loamy soils generally reduces the erodibility of those soils. Alluvium is the primary parent material of the agricultural soils delineated in the resource study area.

Local Geology, Drainage, and Groundwater

A geologic map published by the California Geological Survey (CGS; formerly the California Division of Mines and Geology (Matthews and Burnett 1965)) indicates that the HCP Permit Area is primarily underlain by recent (Holocene-age, less than approximately 10,000 years old) and Pleistocene (together the Quaternary period) alluvial deposits comprising part of the sediments of the Great Valley. The deposits are sediments laid down from streams flowing from the highlands to the east. The primary constituents of the deposits are sand and silt derived from metamorphic and igneous rocks of the Sierra Nevada. In addition, the eastern part of the alignment, north of Woodlake, would cross areas mapped as metamorphic rock.

In the easternmost portions of the alignment, granitic rock associated with the Sierra Nevada is mapped. The granitic rock is an intrusive igneous rock that crystallized from molten magma and comprises the bulk of the Sierra Nevada that was emplaced mostly during the Mesozoic Era, some 65–230 million years ago.

Western and central portions of the HCP Permit Area are in the valley crossing areas of relatively slight relief at elevations of roughly 350–450 feet amsl. The eastern end of the proposed alignment is at an elevation of approximately 675 feet amsl as it rises into the foothills. Drainage in the resource study area is primarily by the way of creeks, canals, and the Kaweah River, which generally drain to the west–southwest. A review of well data indicates that

groundwater in the valley portions of the resource study area is generally at depths of less than 100 feet, with some areas with groundwater at depths of less than 50 feet, particularly near areas where surface water is present (CDWR 2008). Deeper groundwater levels can be expected in the eastern foothill sections of the resource study area.

Geologic Hazards

A geologic hazard is a geologic condition, either natural or man-made, that poses a potential danger to life and property. A discussion of potential geologic hazards in the resource study area is presented below.

Seismic Activity

Based on the tectonic setting and the historical record, the HCP Permit Area is in a region that is characterized by a relatively low level of seismicity. According to a probabilistic seismic hazard model for California peak horizontal ground accelerations having a 10% probability of exceedance in 50 years can be estimated to be approximately 20% of gravity (0.2 g), which can be considered low compared to the many more seismically active areas of western California (CGS 2002).

Liquefaction

Soil liquefaction can be caused by strong vibratory motion due to earthquakes. Research and historical data indicate that loose granular soils and non-plastic silts that are saturated by relatively shallow groundwater (generally less than 50 feet) are susceptible to liquefaction. Liquefaction causes soil to lose strength and "liquefy," triggering structural distress or failure due to the dynamic settlement of the ground or a loss of strength in the soils underneath structures.

Lateral spreading of the ground surface during an earthquake usually takes place along weak shear zones that have formed within a liquefiable soil layer. Lateral spreading has generally been observed to take place in the direction of a free-face (e.g., a retaining wall or slope).

Liquefiable conditions, should they be present in the HCP Permit Area, have a higher potential of occurring in the western portions of the alignment where relatively young, potentially loose alluvial deposits occur and in those areas where groundwater levels are less than 50 feet in depth. The actual presence and extent of liquefiable soils would be evaluated as part of the subsurface exploration program that would be required for the proper geotechnical design of the proposed transmission line.

Subsidence

Land subsidence is a loss in surface elevation due to removal of subsurface support on the soil structure. Subsidence is recognized as one of the most diverse forms of ground failure, ranging

from small or local collapses to broad regional lowering of the Earth's surface. Land subsidence associated with groundwater-level declines has been recognized in the San Joaquin Valley since the 1930s. Areas with up to 28 feet of ground subsidence in the valley have been recorded. Since the early 1970s, land subsidence has continued in some locations, but has generally slowed due to reductions in groundwater pumpage and the accompanying recovery of groundwater made possible by supplemental use of surface water for irrigation (Galloway and Riley 2008). To a lesser extent, the extraction of fluids from oil and gas wells in the San Joaquin Valley has also contributed to land subsidence. There are no known areas of subsidence in the HCP Permit Area.

Collapsible Soils

Soil collapse, or hydro-consolidation, occurs when soils undergo a rearrangement of their grains and a loss of cementation, resulting in substantial and rapid settlement under relatively low loads. This phenomenon typically occurs in recently deposited Holocene soils in a dry or semiarid environment, including eolian (wind-blown) sands and alluvial fan and mudflow sediments deposited during flash floods. The combination of weight from a building or other structures and an increase in surface water infiltration (such as from irrigation or a rise in the groundwater table) can initiate settlement and cause structural foundations and walls to crack. Collapsible soils, should they be present in the HCP Permit Area, have a higher potential of occurring in the western portions of the alignment, where relatively young, potentially loose alluvial deposits occur. The actual presence and extent of collapsible soils would be evaluated as part of the subsurface exploration program that would be required for the proper geotechnical design of the proposed transmission line.

Expansive Soils

Expansive soils contain significant amounts of clay particles that have the ability to give up water (shrink) or take on water (swell). When these soils swell, the change in volume can exert significant pressures on loads that are placed on them, such as buildings, and can result in structural distress and/or damage. Due to the granular nature of the soils in the HCP Permit Area, the potential for expansive soils is low.

Landslides

Due to slight topographic relief over much of the HCP Permit Area, landslides are not a concern except in the eastern portions of the proposed alignment that encroach into the Sierra Nevada. The suggestion that the shape of Stokes Mountain is due to landsliding on a very large scale is not supported by the indicated geologic conditions and, "could be an erosional manifestation of the geologic structure of the underlying granitic and basic intrusive bedrock" (MACTEC 2007). A geologic report prepared for the proposed transmission line also concludes that if a large, deep-seated landslide is present downslope to the north of the Stokes Mountain ridgeline, it is anticipated to be stable (MACTEC 2007).

Mineral Resources

There are currently 28 active aggregate mines in Tulare County, most of which are located along rivers at the base of the Sierra Nevada. The most economically significant mineral resources in Tulare County are sand, gravel, and crushed stone, which are used as sources for aggregate (road materials and other construction). The two major sources of aggregate are alluvial deposits (river beds and floodplains), and hard rock quarries (County of Tulare 2013).

There are no designated mineral resource zones (MRZs) in the HCP Permit Area, though the nearest MRZ is approximately 250 feet from the HCP Permit Area (see Figure 4-2, Mineral Resource Zones). Aggregate mineral production sites are located predominantly along the Kaweah River, near the community of Lemon Cove, and along the Tule River between the City of Porterville and Lake Success. None of the aggregate production areas are located within the HCP Permit Area.

4.2 IMPACT ANALYSIS REGULATORY FRAMEWORK

Federal Regulations

There are no federal regulations pertaining to potential impacts on geological/soil resources that would apply to the proposed action.

State Regulations

Alquist–Priolo Earthquake Fault Zoning Act

The Alquist–Priolo Earthquake Fault Zoning Act was passed in 1972 to mitigate the hazard of surface faulting to structures for human occupancy. In accordance with this act, the state geologist established regulatory zones, called "earthquake fault zones," around the surface traces of active faults and published maps showing these zones. Within these zones, buildings for human occupancy cannot be constructed across the surface trace of active faults. Each earthquake fault zone extends approximately 200–500 feet on either side of the mapped fault trace, because many active faults are complex and consist of more than one branch. There is the potential for ground-surface rupture along any of the branches. This act will not apply to the proposed action or its alternatives as there are no earthquake fault zones in the resource study area.

California Building Code

The California Building Code (CBC) has been codified in the California Code of Regulations (CCR) as Title 24, Part 2. Title 24 is administered by the California Building Standards Commission, which, by law, is responsible for coordinating all building standards. Under state law, all building standards must be centralized in Title 24 or they are not enforceable. The purpose of the CBC is to establish minimum standards to safeguard public health, safety, and

general welfare through structural strength, means of egress facilities, and general stability by regulating and controlling the design, construction, quality of materials, use and occupancy, location, and maintenance of all buildings and structures within its jurisdiction. The CBC is based on the International Building Code (IBC). The 2007 CBC is based on the 2006 IBC published by the International Code Conference. In addition, the CBC contains necessary California amendments that are based on the American Society of Civil Engineers (ASCE) Minimum Design Standards 7-05. ASCE 7-05 provides requirements for general structural design and includes means for determining earthquake loads as well as other loads (e.g., flood, snow, wind) for inclusion into building codes. The provisions of the CBC apply to the construction, alteration, movement, replacement, and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout California.

The earthquake design requirements take into account the occupancy category of the structure, site class, soil classifications, and various seismic coefficients that are used to determine a Seismic Design Category (SDC) for a project. The SDC is a classification system that combines the occupancy categories with the level of expected ground motions at the site and ranges from SDC A (very small seismic vulnerability) to SDC E/F (very high seismic vulnerability and near a major fault). Design specifications are then determined according to the SDC.

Seismic Hazards Mapping Act

The California Department of Conservation, CGS, provides guidance with regard to seismic hazards. Under the CGS Seismic Hazards Mapping Act, seismic hazard zones are to be identified and mapped to assist local governments for planning and development purposes. The intent of the act is to protect the public from the effects of strong ground shaking, liquefaction, landslides, or other types of ground failure, and other hazards caused by earthquakes. CGS Special Publication 117, *Guidelines for Evaluating and Mitigating Seismic Hazards in California*, provides guidance for evaluation and mitigation of earthquake-related hazards for projects within designated zones of required investigations (CGS 2008). This act will not apply to the proposed action or alternatives as seismic hazard zones have not yet been established in Tulare County.

Local Regulations

Tulare County General Plan

The following goals and policies identified in the Health and Safety Element of the Tulare County General Plan may be applicable to the proposed action and alternatives (County of Tulare 2010).

Health and Safety Element

Goal HS-2: To reduce the risk to life and property and governmental costs from seismic and geologic hazards.

Policy HS-2.1: **Continued Evaluation of Earthquake Risks.** The County shall continue to evaluate areas to determine levels of earthquake risk.

Policy HS-2.2: **Landslide Areas.** The County shall not allow development on existing unconsolidated landslide debris.

Policy HS-2.3: **Hillside Development.** The County shall discourage construction and grading on slopes in excess of 30%.

Policy HS-2.4: **Structure Siting.** The County shall permit development on soils sensitive to seismic activity permitted only after adequate site analysis, including appropriate siting, design of structure, and foundation integrity.

Policy HS-2.5: **Financial Assistance for Seismic Upgrades.** The County shall request federal and state financial assistance to implement corrective seismic safety measures required for existing County buildings and structures.

Policy HS-2.6: **Seismic Standards for Dams.** The County shall continue to address seismic standards of dam safety as promulgated by the State Division of Safety of Dams, as applicable to all new and existing structures.

Policy HS-2.7: **Subsidence.** The County shall confirm that development is not located in any known areas of active subsidence. If urban development may be located in such an area, a special safety study will be prepared and needed safety measures implemented. The County shall also request that developments provide evidence that its long-term use of groundwater resources, where applicable, will not result in notable subsidence attributed to the new extraction of groundwater resources for use by the development.

City of Visalia General Plan

The City of Visalia General Plan Safety Element adopted the Tulare County General Plan Safety Element; therefore, the goals and policies applicable to the proposed action and alternatives in the City's General Plan are the same goals and policies as listed above for the Tulare County General Plan.

4.3 ENVIRONMENTAL CONSEQUENCES

4.3.1 Methodology for Impact Analysis

The project setting was developed by reviewing available information on geology, seismicity, soils, and mineral resources in the resource study area. This review was supplemented with geographic information systems (GIS) data for identifying geologic, seismic, and mineral resources. Using GIS, these resources were overlaid on the proposed alignment and HCP Permit Area to see if there was

overlap. If there was overlap, an assessment of the potential for impacts was conducted using GIS and additional review of the *Report of Geologic Consultation, Proposed Cross Valley Tower Alternate Location, Stokes Mountain East of Dinuba, Tulare County, California* (MACTEC 2007).

Identifying the Threshold of Significance

For the purposes of this Environmental Assessment (EA), an alternative would have a significant impact on geology, seismicity, soils, and mineral resources if it would:

- Increase the exposure to risk from ground shaking and landslides
- Cause potential loss of soil from erosion
- Locate facilities on expansive soils
- Cause potential loss of availability of mineral resources.

4.3.2 No Action Alternative

Direct and Indirect Effects

Under the No Action Alternative, geologic, soils, seismic, and mineral resources or conditions would not change and would remain the same as existing conditions (see Section 4.1). Under the No Action Alternative, the Cross Valley Transmission Line would not be constructed and the existing risk of a voltage collapse area and risk of extended outages of electrical power within the Electrical Needs Area, including Cities of Tulare, Visalia, Hanford, Farmersville, Exeter, Woodlake, and the surrounding areas of Tulare County would increase over time, as new urban growth and development continues with build-out of the Tulare County General Plan 2030 (County of Tulare 2012) and build-out of the Kings County General Plan 2035.

Geologic-related impacts associated with individual future development projects would be addressed by the California Environmental Quality Act (CEQA) on a case-by-case basis. Individual development projects would potentially provide mitigation for any impact to geology and soils.

Determination

Under the No Action Alternative, the proposed HCP and Covered Activities would not be implemented and the Cross Valley transmission line would not be constructed. Therefore, there would be no adverse geology, soils, or mineral effects under the No Action Alternative.

4.3.3 Proposed Action Alternative

Direct and Indirect Effects

The Covered Activities under the HCP include construction of approximately 23 miles of a new transmission line until it reaches the existing Big Creek 3–Springville 220-kilovolt (kV)

transmission line. Construction is anticipated to take 1 year and would include day and nighttime construction. Once installation is complete, operation and maintenance would be administered as necessary and as described in Chapter 2.

Impact GEO-1: Increased exposure to risk from ground shaking and landslides.

Ground shaking along the transmission line alignment could occur due to earthquakes on regional faults. However, the closest active fault to the resource study area is more than 40 miles away (see Figure 4-1, Seismic Hazards). The intensity of the seismic shaking, or strong ground motion, during an earthquake is dependent on the distance between the location experiencing the earthquake and the epicenter of the earthquake, the magnitude of the earthquake, and the geologic conditions underlying and surrounding the area. An earthquake is classified by the amount of energy released, which traditionally has been quantified using the Richter scale. Recently, seismologists have begun using a Moment Magnitude (M) scale because it provides a more accurate measurement of the size of major earthquakes. For earthquakes of less than M 7.0, the Moment and Richter Magnitude scales are nearly identical. For earthquake magnitudes greater than M 7.0, readings on the Moment Magnitude scale are slightly greater than a corresponding Richter Magnitude. The intensity of earthquake-induced ground motions can be described using peak site accelerations, represented as a fraction of the acceleration of gravity (g).

Ground shaking due to seismic events is expected to have low to moderate intensities (CGS 2008). Additionally, CGS Probabilistic Seismic Hazard Assessment (PSHA) maps depict peak ground accelerations with a 10% probability of being exceeded in 50 years, which equals an annual probability of 1 in 475 of being exceeded each year (CGS 2013). According to the PSHA, the proposed transmission line alignment has a 10% probability of exceeding a peak ground acceleration value of 0.2 g in 50 years (CGS 2013).

Strong ground shaking could cause wires to swing and contact each other causing short-circuiting. However, observations from past earthquakes have shown that overhead transmission lines can accommodate strong ground shaking. In fact, the required separation distance to reduce wires touching in strong winds is also considered sufficient to accommodate movement associated with ground shaking. Therefore, existing design criteria for wind loads are adequate to prevent wire contact during ground shaking and thus, this impact would be less than significant. New towers and poles would be designed in accordance with the CBC and the seismic design criteria developed using the site-specific seismic design criteria calculated for the tower and pole locations. Given the relatively low calculated peak ground acceleration and the use of current building code standards, the potential for seismic ground shaking to impact the transmission alignment would not be adverse.

There are no known landslides underlying or adjacent to the transmission line alignment (see Figure 4-1, Seismic Hazards). Due to slight topographic relief over much of the HCP Permit

Area, landslides are not a concern except in the eastern portions of the proposed alignment that encroach into the Sierra Nevada. The suggestion that the shape of Stokes Mountain is due to landsliding on a very large scale is not supported by geologic conditions and, as noted in the MACTEC report, "could be an erosional manifestation of the geologic structure of the underlying granitic and basic intrusive bedrock" (MACTEC 2007). The MACTEC report also concludes that if a large, deep-seated landslide is present downslope to the north of the Stokes Mountain ridgeline, it is anticipated to be stable (MACTEC 2007). Accordingly, no significant adverse impact due to landslides would occur.

Impact GEO-2: Potential loss of soil from erosion.

Surface soil erosion and loss of topsoil could occur from soil disturbances associated with grading, work areas, pole and tower installation, and the construction and use of access roads, which could loosen soil and trigger or accelerate erosion. Soils along the proposed transmission line have a potential hazard of erosion for off-road areas ranging from slight to moderate. Incorporation of environmental commitments (ECs) GEO-1 and GEO-2 would reduce the amount of erosion that could result from construction by limiting construction traffic and grading, planning construction to minimize new ground disturbance, and using best management practices (BMPs) as identified in Chapter 6, Hydrology and Water Quality, to control water erosion. In addition, a Stormwater Pollution Prevention Plan (SWPPP) that would limit erosion from the construction site would be required in accordance with the Clean Water Act. Therefore, no significant adverse impact would occur.

Environmental Commitments

The following ECs are incorporated into the Covered Activities to reduce the effects on the environment associated with implementing the Cross Valley Transmission Line. Implementation of the following ECs would result in no significant adverse impact.

EC GEO-1: For all segments of new access roads that would be within 300 feet of an existing surface water channel (including irrigation ditches where no berm or levee is currently in place) and traverse a ground slope greater than two percent, the following protective measures shall be installed:

- Permanent access roads shall be in-sloped with a rock-lined ditch on the inboard side;
- Water bars, or a similar drainage feature, shall be installed at 150 foot intervals (so as to reduce the effective, connected length of the access road to150 feet).

(This measure corresponds to Mitigation Measure 4.8-1 (CPUC 2010).)

EC GEO-2: SCE and/or its contractors shall ensure that the following measures are taken:

- Replace soils in a manner that shall minimize any negative impacts on crop productivity. The surface and subsurface layers shall be stockpiled separately and returned to their appropriate locations in the soil profile; alternately, SCE may work with individual property owners to develop a different method for the disposition of any soils that are impacted on private property, assuming a mutual agreement may be reached.
- To avoid over-compaction of the top layers of soil, monitor pre-construction soil densities and return the surface soil (approximately the top three feet) to within five percent of original density, except where higher soil density is necessary to meet engineering requirements for tower foundations within the tower buffer zone.
- Where necessary, the top soil layers shall be ripped to achieve the appropriate soil density. Ripping may also be used in areas where vehicle and equipment traffic have compacted the top soil layers.
- Avoid working or traveling on wet soil to minimize compaction and loss of soil structure.
- Remove all construction-related debris from the soil surface. This shall prevent rock, gravel, and construction debris from interfering with agricultural activities.
- Remove topsoil before excavating in fields. Return it to top of fields to avoid detrimental inversion of soil profiles.

  (This measure corresponds to Mitigation Measure 4.2-1a (CPUC 2010).)

Impact GEO-3: Location of facilities on expansive soils.

Shrink-swell or expansive soil behavior is a condition in which soil reacts to changes in moisture content by expanding or contracting. Soils that exhibit shrink-swell behavior are clay-rich and react to changes in moisture content by expanding or contracting. Expansive soils can cause structural damage, particularly when concrete structures are in direct contact with the soils. The resource study area is underlain by soils classified as a loam, sand loam, or silt loam (USDA 2008). A loam is friable soil containing a relatively equal mixture of sand and silt and a somewhat smaller portion of clay. The mixture of sand and finer-grained materials in loamy soils generally reduces the erodibility of those soils. Alluvium is the primary parent material of the agricultural soils delineated in the resource study area. Due to the granular nature of the soils along the alignment (primarily sands), substantial amounts of expansive soils in the resource study area are not likely to exist. Furthermore, implementation of standard engineering methods would ensure that no significant adverse impacts associated with expansive soils would occur.

Impact GEO-4: Potential loss of availability of mineral resources.

As discussed previously, there are currently 28 active aggregate mines in Tulare County, most of which are located along rivers at the base of the Sierra Nevada. There are no designated mineral MRZs in the HCP Permit Area. The nearest MRZ is approximately 250 feet from the HCP Permit Area (see Figure 4-2, Mineral Resource Zones). The activities from the proposed transmission line, including lattice tower replacement, new pole/tower installation, and substation upgrades, would affect only the soils in the HCP Permit Area and would not affect designated or identified mineral resources. The transmission line and related facilities would not be located in an area currently used to extract known mineral resources, or an area designated as an MRZ. Given these factors, the proposed transmission line would not result in the loss of availability of locally important minerals and no significant adverse impact would occur.

Determination

The Service evaluated the past and present effects on geological resources as summarized in Section 4.2. We conclude that under the proposed HCP/permit action, no significant adverse effects would occur related to geology or soils upon implementation of ECs GEO-1 and GEO-2. The Proposed HCP/Permit action would not result in significant adverse risk from ground shaking or landslides, as the proposed alignment is located in an area with low ground shaking intensity and is not located in an area with history of landslide or significant slopes. The proposed HCP/permit action would not result in significant adverse soil loss or erosion since construction activities would be mitigated through implementation of ECs GEO-1 and GEO-2. Additionally, the proposed transmission line would not be located on soils with a significant risk for expansion, or on an area currently used for mineral extraction. Therefore, this level of effect does not meet thresholds GEO-1–GEO-4 and is determined to be not significant or adverse by the Service.

Cumulative Effects of the Proposed Action

Impact GEO-1: Increased exposure to risk from ground shaking and landslides

Impacts on geology and soils are generally localized and do not result in regionally cumulative impacts. Geologic conditions can vary significantly over short distances creating entirely different effects elsewhere. Other future development would be constructed to the then-current standards, which could potentially exceed those of existing improvements within the region, which reduces the potential impacts to the public.

The impact of the proposed HCP/permit action related to risk from ground shaking or landslides would be localized and incrementally not significantly adverse. Moreover, the proposed transmission line would be constructed in accordance with the most recent version of the CBC seismic safety requirements and recommendations. Therefore, incremental impacts to area

geology and soils resulting from construction, operation and maintenance of the proposed transmission line would result in no cumulatively significant adverse impact.

Impact GEO-2: Potential loss of soil from erosion.

As discussed above, impacts on geology and soils are generally localized and do not result in regionally cumulative impacts. The proposed transmission line may result in erosion or loss of soil during construction activities, which would be minimized and not considered significant after incorporation of ECs GEO-1 and GEO-2. Likewise, other future development would have the potential for soil erosion in the area, but with incorporation of mitigation for those projects through the CEQA process, there would not be a cumulatively significant effect when considered in combination with the proposed Cross Valley Transmission Line. Therefore, the impact of the proposed HCP/permit action related to potential loss of soil from erosion would be localized and incrementally not significantly adverse with incorporation of ECs GEO-1 and GEO-2. Additionally, individual future projects would be required to incorporate BMPs to minimize soil loss and erosion on an individual project basis through the permitting process. Therefore, incremental impacts to area geology and soils resulting from construction and operation of the proposed transmission line would result in no significant adverse cumulative impact.

Impact GEO-3: Location of facilities on expansive soils.

Soils types are generally localized and are not regionally consistent. As discussed above, soils in the resource study area are not likely to be expansive or have potential for expansion. Cumulative project sites would have individual, site-specific soil characteristics which may be subject to expansive soils, but application of BMPs and standard engineering practices would avoid the effects of expansive soils. Therefore, the impact of the proposed HCP/permit action related to potentially expansive soils would be localized and incrementally not significantly adverse. Therefore, no significant adverse cumulative impacts associated with expansive soils would occur.

Impact GEO-4: Potential loss of availability of mineral resources.

The Covered Activities would affect only the mineral resources in the HCP Permit Area. The HCP Permit Area is not an area currently used to extract known mineral resources, or in an area designated as an MRZ. Given these factors, the proposed transmission line would not result in or incrementally contribute to the loss of availability of locally-important minerals. Individual future projects could impact the availability of mineral resources, which would be evaluated on a case-by-case basis during project-level environmental review. The proposed transmission line would not result in the loss of availability of locally important minerals and no significant adverse cumulative impact would occur.

Determination

The Service evaluated the past and present effects on geological resources as summarized in Section 4.1. Then the Service evaluated effects of the reasonably foreseeable other projects, as summarized in Section 4.3 and Chapter 3. Finally, the Service added the incremental effects of the proposed action, as described in Section 4.3, to those other effects. The Service concludes that the small incremental effects of the proposed permit action and HCP, when added to the effects of the past, present, and reasonably foreseeable future projects on the geological resources in the resource study area do not meet the identified thresholds of significance (Impacts GEO-1–GEO-4) and are not considered significant or adverse.

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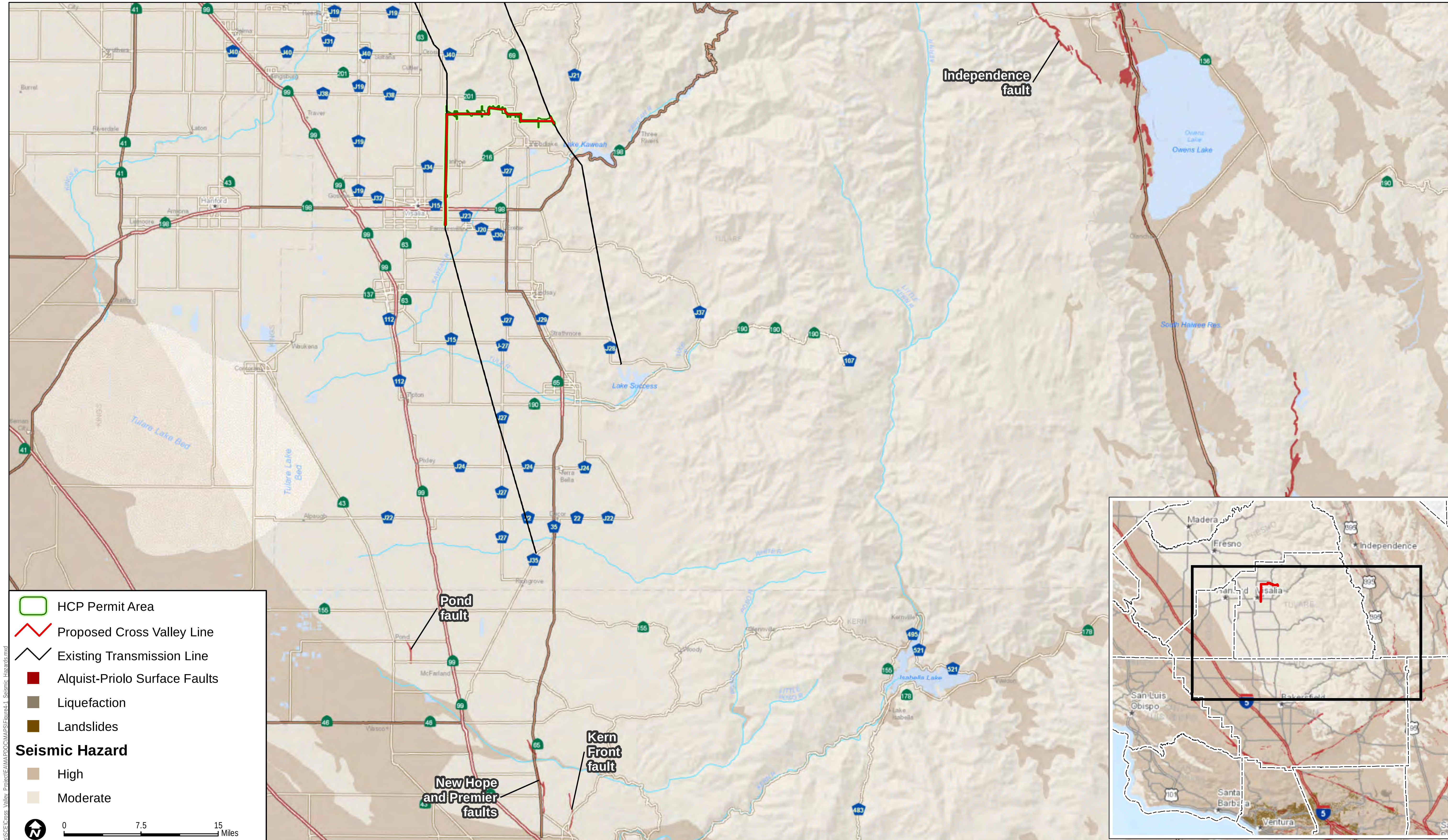

SOURCE: SCE 2013, California Dept. of Conservation - California Geological Survey

FIGURE 4-1
Seismic Hazards

EA

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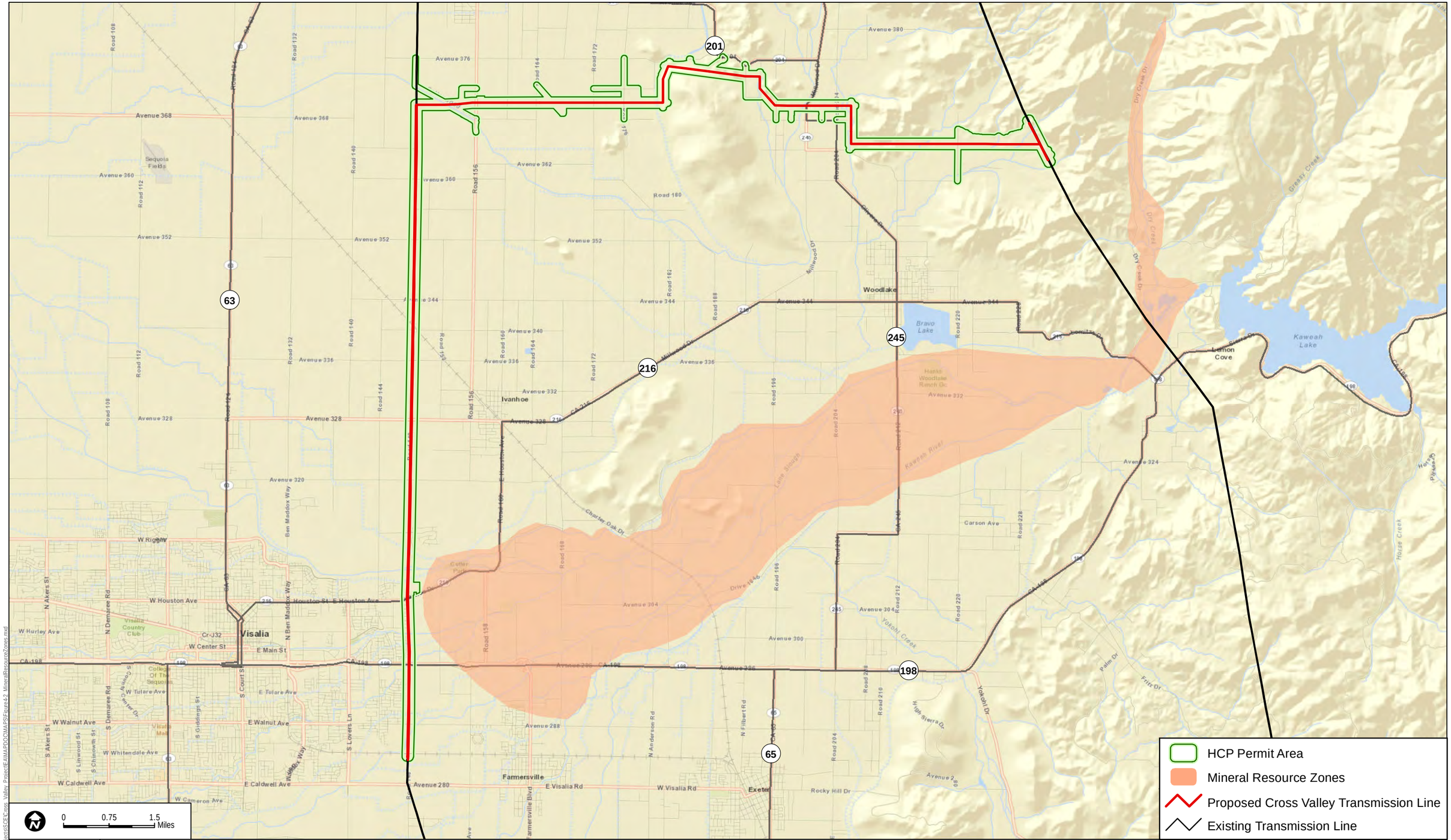

SOURCE: SCE 2013, Mineral Resouce Zone digitized from Map fromTulare County, ESRI Online

FIGURE 4-2

Mineral Resource Zones

EA

CROSS VALLEY TRANSMISSION LINE HABITAT CONSERVATION PLAN ENVIRONMENTAL ASSESSMENT

Path: \\brvfs1\fps\GIS\Data\Projects\SCE\Cross_Valley_Project\EA\MAPPDOC\MAPS\Figure4-2_MineralResourceZones.mxd

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CHAPTER 5.0
AGRICULTURAL RESOURCES

This chapter describes the existing conditions pertaining to agricultural resources and discusses applicable federal, state, and regional regulations addressing protection of these resources. This chapter also evaluates the potential environmental consequences that could result from each alternative discussed in Chapter 2.

Public and agency comments received during early public scoping (see CPUC 2009) included concerns regarding impacts on important farmland and walnut groves along the proposed Cross Valley Transmission Line alignment. The Habitat Conservation Plan (HCP) construction Covered Activities being analyzed in this Environmental Assessment (EA) are very similar to the Alternative 2 alignment analyzed in the EIR (CPUC 2009) from the standpoint of agricultural resources. Specific information and analysis from the EIR (CPUC 2009) is incorporated by reference in Chapter 5, as identified below.

5.1 AFFECTED ENVIRONMENT

This section describes the existing agricultural setting in the resource study area, to identify the agricultural resources that might be affected by the alternatives under consideration, including the Proposed Action. We developed the description of the agricultural Affected Environment by reviewing available state and county information about existing agricultural resources within the vicinity of the proposed HCP Permit Area.

Tulare County is rural in character with open pastures and scattered ranches and residences. The County is the second-leading producer of agricultural commodities in the United States, with a total gross production of $5.6 billion in 2011 (Tulare County Agricultural Commissioner 2012). The top 10 products in Tulare County, by total value, were milk, oranges, cattle, grapes, corn, alfalfa, pistachios, walnuts, almonds, and tangerines (Tulare County Agricultural Commissioner 2012).

Tulare County is known in particular for its citrus industry, with almost 119,000 acres of citrus (Tulare County Agricultural Commissioner 2012). California's citrus industry ranks second in the United States after Florida. Tulare County's "Citrus Belt" extends from Porterville through Lindsay, Exeter, and Dinuba.

According to the 2007 Census of Agriculture, there are 1,168,684 acres of farmland in Tulare County (USDA 2009). The proposed Cross Valley Line HCP Covered Activities would traverse parcels that are currently agricultural in nature, varying from orchards to row crops to grazing lands. The most common crop grown in the proposed HCP Planning Area is oranges, followed by walnuts (CPUC 2009, Table 4.2-1).

Important Farmland

The California Department of Conservation (DOC), Division of Land Resource Protection, maintains the Farmland Mapping and Monitoring Program (FMMP), which monitors the conversion of the state's farmland to and from agricultural use. The map series identifies eight classifications (discussed below) and uses a minimum mapping unit size of 10 acres. The program also produces a biannual report on the amount of land converted from agricultural to non-agricultural use. The program maintains an inventory of state agricultural land and updates its Important Farmland Series Maps every 2 years. Although the program monitors a wide variety of farmland types (more fully described below), Important Farmland consists of lands classified as Prime Farmland, Farmland of Statewide Importance, and Unique Farmland.

To characterize the existing Affected Environment for agricultural resources, Important Farmland Maps produced by the California DOC FMMP were reviewed. Important Farmland maps show categories of Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance (if adopted by the county), Grazing Land, Urban and Built-up Land, Other Land, and Water. Prime Farmland and Farmland of Statewide Importance map categories are based on qualifying soil types, as determined by the U.S. Department of Agriculture (USDA), Natural Resources Conservation Service, as well as current land use. The Department of Conservation FMMP defines these map categories as follows.

> **Prime Farmland:** Land which has the best combination of physical and chemical characteristics for the production of crops. It has the soil quality, growing season, and moisture supply needed to produce sustained high yields of crops when treated and managed, including water management, according to current farming methods.
>
> **Farmland of Statewide Importance:** Land that is similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to hold and store moisture.
>
> **Unique Farmland:** Land of lesser quality soils used for the production of specific high economic value crops. It has the special combination of soil quality, location, growing season, and moisture supply needed to produce sustained high quality or high yields of a specific crop when treated and managed according to current farming methods. It is usually irrigated, but may include non-irrigated orchards or vineyards as found in some climatic zones in California. Examples of crops include oranges, olives, avocados, rice, grapes, and cut flowers.
>
> **Farmland of Local Importance:** Land of importance to the local agricultural economy, as determined by each county's board of supervisors and local advisory committees. Examples include dairies, dryland farming, aquaculture, and uncultivated areas with soils qualifying for Prime Farmland and Farmland of Statewide Importance.

Grazing Land: Land suitable for grazing or browsing of livestock based on the existing vegetation.

Urban and Built-up Land: Land used for residential, industrial, commercial, construction, institutional, public administrative purpose, railroad yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment plants, water control structures, and other development purposes. Highways, railroads, and other transportation facilities are also included in this category.

Other Land: Land which is not included in any of the other mapping categories. 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, borrow pits, and water bodies smaller than 40 acres.

Water: Water areas with an extent of at least 40 acres.

The proposed HCP Permit Area includes lands classified by the FMMP as Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, Grazing Land, and Urban and Built-up Land (Figures 5-1a and 5-1b).

Important Farmland Trends

Using data collected by the FMMP, trends in the number of acres of various farmland categories show farmland acreage in Tulare County has been decreasing, with the most significant loss occurring between 2004 and 2006 (County of Tulare 2010a).

Table 5-1 shows the acres of farmland in Tulare County in 2004 and 2006, as well as the farmland conversion acreage.

Table 5-1
Farmland Conversion from 2004–2006 in Tulare County

Farmland Category	Total Acres Inventoried		2004–2006 Acreage Changes		
	2004	*2006*	*Acres Lost*	*Acres Gained*	*Net Change*
Prime Farmland	384,388	379,762	5,907	1,281	-4,626
Farmland of Statewide Importance	339,579	332,159	8,961	1,541	-7,420
Unique Farmland	12,527	12,218	862	553	-309
Farmland of Local Importance	127,436	143,826	3,026	9,416	6,390
Grazing Land	440,620	440,135	1,100	615	-485
Agricultural Land Subtotal	1,314,550	1,308,100	19,856	13,406	-6,450

Source: DOC 2008.

Table 5-2 shows the acres of FMMP farmland categories within the resource study area (proposed HCP Permit Area) and the size of existing transmission facilities within each

category.[1] The categories in Table 5-2 reflect the FMMP categories described in Section 5.2. Note that "Confined Animal, Rural Residential, Non-Ag/Native Vegetation" are all subcategories of "Other" FMMP lands.

Table 5-2
Existing Farmland within the Study Area

FMMP Category	Total Acreage	Existing SCE Facilities	Net Acreage
Confined Animal Land	8.66	—	8.66
Urban	138.51	1.12	137.39
Grazing Land	415.79	—	415.79
Farmland of Local Importance	778.20	2.64	775.57
Non-Ag Vegetation	12.74	—	12.74
Prime Farmland	752.25	5.79	746.46
Rural Residential	59.34	0.31	59.03
Farmland of Statewide Importance	1,140.83	8.95	1,131.88
Unique Farmland	49.43	0.14	49.29
Vacant	29.32	0.32	29.00
Total Land	3,385.07	19.26	33,65.81

Source: DOC 2010; SCE 2013.

Williamson Act Contracts

Williamson Act contracts are a tool often used by local governments to preserve agricultural and open space lands by discouraging premature and unnecessary conversion to urban uses (see Impact Analysis Regulatory Framework below for more specific details). More than 1 million acres of land in the County are in Williamson Act contracts (County of Tulare 2010b).

Table 5-3 identifies the acres of Williamson Act Land within the Study Area. Lands indicated as "Non-Renewal" are parcels where the 10-year contract has not been renewed and the lands are in the process of being removed from the Williamson Act.

Table 5-3
Williamson Act Contract Lands within the Study Area

Contract Type	Acres
Non-Prime	902.50
Prime	1404.41
Prime, Non-Renewal	63.65

Source: DOC 2009; SCE 2013

[1] FMMP data does not exclude individual facilities and structures within land categories, such as transmission tower within an agricultural parcel, so it is necessary to call out the existing transmission facilities to properly characterize the Affected Environment.

5.2 IMPACT ANALYSIS REGULATORY FRAMEWORK

Federal Regulations

Compliance with the following federal regulations pertaining to agricultural resources would be required prior to implementing any action alternative, including the Proposed Action Alternative.

Farmland Protection Policy Act (1981)

The Farmland Protection Policy Act (FPPA) is part of the Agriculture and Food Act of 1981 (Public Law 97–98). The FPPA is subtitle I of Title XV, Sections 1539–1549. The purpose of this act is to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses. Federal agencies are to identify and take into account the adverse effects of their programs on the preservation of farmland, to consider alternative actions, as appropriate, that could lessen adverse effects, and to ensure that their programs, to the extent practicable, are compatible with state and units of local government and private programs and policies to protect farmland. Federal agencies are required to develop and review their policies and procedures to implement the FPPA every 2 years. For the purpose of the FPPA, farmland includes Prime Farmland, Unique Farmland, and Farmland of Statewide Importance or Farmland of Local Importance. Farmland subject to FPPA requirements does not have to be currently used for cropland. It can be forest land, pastureland, cropland, or other land, but not water or urban built-up land.

Farms and Future Act (1990)

This act allowed the federal government to give states guaranteed loans and subsidized interest to start to protect farmland.

Farm Bill

Federal efforts to protect farmland from conversion to nonagricultural uses began in 1981 when federal agencies were required to evaluate the impact of federally funded programs that converted farmland to nonagricultural uses and to consider alternative actions that would lessen the adverse impacts.

All 50 states have preferential assessment programs, through which farmland is assessed at its agricultural-use value for property tax purposes, and “right-to-farm” laws, which protect farmers from nuisance lawsuits brought by nonfarm neighbors. Some states have programs to purchase development rights from farmland owners.

State Regulations

The following State of California regulations pertaining to agricultural resources would apply to the proposed action.

California Farmland Mapping and Monitoring Program

The California DOC, under the Division of Land Resource Protection, has set up the FMMP. The FMMP monitors the conversion of the state's farmland to and from agricultural use. The map series identifies 8 classifications and uses a minimum mapping unit size of 10 acres. The FMMP also produces a biannual report on the amount of land converted from agricultural to nonagricultural use. The FMMP is an informational service only and does not have regulatory jurisdiction over local land use decisions. For the purpose of this environmental analysis and consistency with the Farmland Policy Act of 1981, important farmland includes Prime Farmland, Unique Farmland, and Farmland of Statewide Importance or Farmland of Local Importance.

Williamson Act (California Land Conservation Act of 1965)

The Williamson Act (California Government Code Section 51200 et seq.) allows county governments to enter into contracts with private landowners who agree to restrict parcels of land to agricultural uses or uses compatible with agriculture for at least 10 years. In return, landowners receive property tax assessments that are much lower than normal because they are based on income derived from farming and open space uses as opposed to full market value of the property. The term of the contract automatically renews each year, so that the contract always has a 10-year period left to function. The Williamson Act Program was revised by the enactment of Farmland Security Zone legislation during the 1998 legislative session, offering landowners greater property tax reduction in exchange for a longer contract term than under the Williamson Act Program.

As shown in Figures 5-2a and 5-2b, large portions of the resource study area are within lands under Williamson Act contracts.

Under the Williamson Act, Section 51238(a)(1), electrical facilities are determined as compatible uses within an agricultural preserve unless the County or City makes a specific determination to the contrary.

Local Regulations

The following local/regional regulations pertaining to agricultural resources would apply to the proposed action.

Tulare County General Plan

The Agriculture Element of the Tulare County General Plan includes the following goals regarding agricultural resources.

Goal AG-1: To promote the long-term preservation of productive and potentially-productive agricultural lands and to accommodate agricultural-support services and agriculturally related activities that supports the viability of agriculture and further the County's economic development goals.

Goal AG-2: To support increased viability of agriculture production and promote high-value, employment-intensive, and diverse agricultural production and processing in Tulare County.

The resource study area lies primarily within the unincorporated County area, with a County Land Use designation of Agricultural (see Figure 9-3).

Tulare County Zoning Ordinance

The Tulare County Zoning Ordinance has specific zoning designations for agricultural lands. The AE-20, AE-40, and AE-80 districts are intended to be applied to land areas which are used or are suitable for use for intensive agricultural production on 20-, 40-, and 80-acre minimum parcels, respectively. The AF District is intended to be applied to agricultural and open space protection. The A-1 District is intended to provide an area for agricultural production (County of Tulare 2007). The resource study area falls primarily in the AE-20 and AE-40 zones (see Figure 9-7). Portions of the N-S Alignment are within the City of Visalia, and have City zoning designations (see below).

Visalia General Plan

The City of Visalia General Plan Land Use Element includes the following objective (Visalia 1996).

Objective 6.3A: Protect agricultural land from premature urban development.

The Conservation, Open Space, Recreation and Parks Element includes the following objective (City of Visalia 2003):

Objective 2.1C: Preserve and protect agricultural use on lands in and surrounding the Visalia Planning Area for open space purposes and managed production of resources.

Portions of the N–S Alignment pass through the City of Visalia planning area, known as the Urban Area Boundary (see Figure 9-3). Some portions of the N–S Alignment also fall within the

Urban Area Development Boundary (which coincides with the City Limits). Within the Urban Area Development Boundary, the land use designation is Residential.

City of Visalia Zoning Ordinance

Portions of the N–S Alignment pass through the City of Visalia city limits and planning area (see Figure 9-7). Within the City Limits, the zoning in the resource study area is primarily low-density residential. Outside of the City Limits, City zoning does not apply, but those areas are designated as agricultural in the General Plan Land Use Element.

5.3 ENVIRONMENTAL CONSEQUENCES

5.3.1 Methodology for Impact Analysis

The resource study area used to analyze direct effects on agricultural resources is the HCP Permit Area. The Permit Area includes the proposed right-of-way (ROW) and a 500-foot buffer on either side of the alignment. This resource study area was selected because this is the largest area in which any action alternative could result in a direct conversion of farmland, or result in limitations on agricultural operations (e.g., spraying restrictions, dust) on farmland adjacent to the proposed ROW. The resource study area for the analysis of indirect effects and cumulative effects is the County of Tulare (County) because state farmland is classified and monitored at the County-level.

To estimate potential direct and indirect effects on agricultural resources, we used a geographic information system (GIS) to interface and then compare state maps of farmland classifications and Williamson Act contract parcels, with detailed GIS maps of the temporary and permanent disturbance areas expected under the proposed HCP Covered Activities. For potential future conversion of farmland within the City of Visalia, the approximate land use boundaries of the General Plan Land Use Map were compared to the state farmland map. This quantitative spatial analysis, along with a qualitative evaluation of the proposed action's potential to conflict with existing agricultural resources outside of the proposed HCP Permit Area, was used to estimate the direct and indirect effects of the proposed action.

Identifying the Threshold of Significance

For the purposes of this EA, an alternative would have a significant impact on agricultural resources if it would:

- Convert a substantial amount of agricultural lands in Tulare County to nonagricultural use;
- Implement land use changes that would conflict with Williamson Act contracts; or
- Cause significant soil erosion, soil loss, and decrease in soil productivity, or other effects that would impair the productive use of a substantial amount of agricultural lands in Tulare County.

A "substantial" amount is defined as 10 acres of Prime Farmland, or a total of 40 acres of Important Farmland (defined as Prime Farmland, Unique Farmland, and Farmland of Statewide Importance). Conversion, or a significant impairment, of this amount of land exceeding this threshold would be potentially significant, and would trigger additional review and consultation with the Natural Resource Conservation Service (NRCS). NRCS Form AD-1006 would be completed and forwarded to the local NRCS branch for a significance determination. The threshold of 10 acres of Prime Farmland, or 40 acres of Important Farmland, is based on California Government Code Section 51222 (the Williamson Act), which states "agricultural land shall be presumed to be in parcels large enough to sustain their agricultural use if the land is (1) at least 10 acres in size in the case of prime agricultural land, or (2) at least 40 acres in size in the case of land which is not prime agricultural land."

5.3.2 No Action Alternative

Direct and Indirect Effects

Under the No Action Alternative, the proposed permit and HCP, including the proposed HCP Covered Activities, would not be implemented. None of the agricultural resources within the proposed HCP Permit Area would be affected by the transmission line construction and maintenance. Existing agricultural land uses would remain in agricultural uses. Under this alternative, reasonably foreseeable future development could occur within the HCP Permit Area if that development is compatible with existing land uses.

The land uses in the resource study area is designated for continued agricultural use by the County of Tulare (County of Tulare 2012). Under the No Action Alternative, there may be agricultural uses (farmworker housing, processing, etc.) that convert farmland, or urban infrastructure projects (roads, pipelines, etc.) that result in loss of farmland. However, these would be isolated events. These potential future facilities would require separate environmental reviews, with measures to avoid or reduce effects to important farmland.

Within the City of Visalia, there is undeveloped farmland within the proposed HCP Planning Area and the agricultural resource study area. Some, but not all, of this land is within the Urban Development Area Boundary, and can be developed for low-density residential uses in the future (City of Visalia 1996). The farmland in these areas includes Farmland of Local Importance. The overall amount of farmland subject to future conversion within the City of Visalia is small and is already designated for future urban use.

Table 5-4 shows the potential urban conversion of farmlands within the City of Visalia.

Table 5-4
No Action Alternative, Farmland Conversion

FMMP Category	Net Existing Acreage	Visalia Conversion	No Action Net Acreage
Confined Animal Land	8.66	—	8.66
Urban	137.39	—	137.39
Grazing Land	415.79	—	415.79
Farmland of Local Importance	775.57	42.94	732.63
Non-Ag Vegetation	12.74	0.44	12.29
Prime Farmland	746.46	22.86	723.60
Rural Residential	59.03	—	59.03
Farmland of Statewide Importance	1,131.88	—	1,131.88
Unique Farmland	49.29	—	49.29
Vacant	29.00	10.17	18.83
Total Land	3,365.81	76.42	3,289.39

Source: DOC 2010; Visalia 1996.

Determination

Within the agricultural resource study area, future conversion of agricultural lands is expected primarily within the City of Visalia. Future urban development in Visalia would convert 23 acres of Prime Farmland and 43 acres of Farmland of Local Importance. This farmland is within the City limits and has been previously designated for residential uses by the City's General Plan (City of Visalia 1996). This conversion has been previously analyzed in the City of Visalia's EIR for the General Plan Land Use Element Update (City of Visalia 1991). Therefore, the potential future conversion of agricultural land under the No Action Alternative would not be a substantial adverse effect to existing agricultural resources within the resource study area.

5.3.3 Proposed Action Alternative

Direct and Indirect Effects

Impact AG-1: Potential conversion of agricultural lands to non-agricultural use.

The implementation of the Proposed Action Alternative would result in the permanent conversion of agricultural lands within the resource study area. Permanent conversions would result from the construction and maintenance of the structure foundations/footings, structure pads, crane pads, and the new access roads. In addition, temporary conversion of agricultural lands would result from construction vehicles and activities within the temporary staging areas, laydown areas, and from general disturbance within the HCP Permit Area. The acreages for temporary and permanent farmland conversion are shown in Table 5-5, Proposed Action Alternative, Farmland Conversion.

Table 5-5
Proposed Action Alternative, Farmland Conversion

FMMP Category	Net Existing Acreage	Permanent Impact (Acres)	Temporary Impacts (Acres)	Net Permanent Acres
Confined Animal Land	8.66			8.66
Urban	137.39		3.03	137.39
Grazing Land	415.79	17.83	14.12	397.97
Farmland of Local Importance	775.57	16.88	32.67	758.69
Non-Ag Vegetation	12.74		0.03	12.74
Prime Farmland	746.46	3.90	25.41	742.56
Rural Residential	59.03		1.13	59.03
Farmland of Statewide Importance	1,131.88	6.55	30.61	1,125.34
Unique Farmland	49.29		0.45	49.29
Vacant	29.00		0.37	29.00
Total Land	3,365.81	45.15	107.81	3,320.66

Source: DOC 2010; SCE 2013.

As shown, the proposed action would result in a permanent conversion of 3.90 acres of Prime Farmland and 6.55 acres of Farmland of Statewide Importance (10.45 acres total of Important Farmland). The conversion of Prime Farmland and Farmland of Statewide Importance is considered a direct adverse effect. However, the amount of land that would be converted is far below the screening threshold identified in this chapter. In addition, the potential conversion would not result in urban or rural residential development that would be considered incompatible with agricultural land use. The proposed HCP's conservation strategy would provide mitigation for these direct adverse effects to agricultural land, as described below.

As the infrastructure is regional in nature and does not serve immediately adjacent properties, the proposed action would not result in conversion pressures on adjacent farmlands (in other words, the growth inducement, or "domino effect," would not occur). Therefore, the effects of the conversion are not significant.

In addition to the permanent conversion, 56.47 acres of Important Farmland would be temporarily converted, of which 25.41 acres are categorized as Prime Farmland, 30.61 acres are Farmland of Statewide Importance, and 0.45 acre is Unique Farmland. Construction activities may also create temporary nuisance effects to adjacent agricultural land uses. These effects are analyzed in Impact AG-3, below. These agricultural lands would be disturbed for less than 12 months, and the proposed HCP conservation strategy includes measures necessary to ensure that farmland is restored to pre-construction conditions.

Environmental Commitments

EC AG-1a: For each acre of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance that is permanently converted, SCE shall obtain one (1) acre of agricultural conservation easements. An agricultural conservation easement is a voluntary, recorded agreement between a landowner and a holder of the easement that preserves the land for agriculture. The easement places legally enforceable restrictions on the land. The exact terms of the easement are negotiated, but restricted activities shall include subdivision of that property, non-farm development, and other uses that are inconsistent with agricultural production. The mitigation lands must be of equal or better quality (according to the latest available FMMP data) and have an adequate water supply. In addition, the mitigation lands must be within Tulare County.

(This measure corresponds to Mitigation Measure 4.2-2 (CPUC 2010).)

EC AG-1b: SCE and/or its contractors shall implement the following measures to reduce temporary impacts to farmland:

- Replace soils in a manner that shall minimize any negative impacts on crop productivity. The surface and subsurface layers shall be stockpiled separately and returned to their appropriate locations in the soil profile; alternately, SCE may work with individual property owners to develop a different method for the disposition of any soils that are impacted on private property, assuming a mutual agreement may be reached.
- To avoid over-compaction of the top layers of soil, monitor pre-construction soil densities and return the surface soil (approximately the top three feet) to within 5% of original density, except where higher soil density is necessary to meet engineering requirements for tower foundations within the tower buffer zone.
- Where necessary, the top soil layers shall be ripped to achieve the appropriate soil density. Ripping may also be used in areas where vehicle and equipment traffic have compacted the top soil layers.
- Avoid working or traveling on wet soil to minimize compaction and loss of soil structure.
- Remove all construction-related debris from the soil surface. This shall prevent rock, gravel, and construction debris from interfering with agricultural activities.
- Remove topsoil before excavating in fields. Return it to top of fields to avoid detrimental inversion of soil profiles.

(This measure corresponds to Mitigation Measure 4.2-1a (CPUC 2010).)

EC-AG-2c: SCE and/or its contractors shall incorporate the following measures into the project construction plans and specifications specific to lands designated as Farmland:

- Coordinate construction scheduling as practicable so as to minimize disruption of agricultural operations by scheduling excavation to occur before or after the growing season.
- Minimize construction dust on crops by implementing CE-AQ1 (Air Quality).
- Supply replacement crops and trees at a mitigation ratio of one to one, upon completion of construction.

  Coordinate planting of replacement crops and trees with landowners.

  (This measure corresponds to Mitigation Measure 4.2-1b (CPUC 2010).)

Determination

The amount of Prime and other Important Farmland that would be converted by the proposed action is less than the screening threshold identified in this chapter. In addition, the converted lands would not substantially impair the agricultural uses around them; the indirect effects typical of urban conversion would not occur. Agricultural conservation easements (EC AG-1a) would permanently protect a like amount of farmland and reduce the overall amount of existing farmland subject to future conversion; and the price paid for the easement would enhance the economic viability of agriculture in the County. Therefore, the Service concludes that the proposed HCP's permanent conversion of agricultural resources would be less than significant or not adverse.

For temporary impacts, the farmland would be impaired for less than 12 months. Implementation of ECs AG-1b and 1c would rectify any effects of the construction operation and would help return the land to its pre-construction state. Therefore, the Service concludes that the proposed HCP's temporary effects to agricultural resources would be less than significant or not adverse.

Impact AG-2: Potential conflict with Williamson Act Contracts.

The proposed action would result in the construction of facilities on Williamson Act contracted land and reduce the acreage of those lands available for agriculture. The acreage of permanently affected Williamson Act contracted land is displayed in Table 5-6, Proposed Action Alternative, Williamson Act Land. Williamson Act contracts may apply to both Prime and Non-Prime agricultural lands (note that these designations may not exactly correspond to the FMMP categories described above).

Table 5-6
Proposed Action Alternative, Williamson Act Land

WA Category	Permanent (Acres)	Temporary (Acres)
Prime*	10.1	45.88
Non-Prime*	28.27	38.56
Total	38.37	84.44

Source: DOC 2009, SCE 2013
Note: *These designations may not exactly correspond to the FMMP categories.

As summarized in Table 5-6, 38.37 acres of land under Williamson Act contracts would be affected by the Proposed Action (either occupied by structures or as part of the structure pad around the towers). As described in Section 5.2, electrical transmission facilities are considered compatible uses with Williamson Act preserves.

Determination

Lands within the resource study area currently subject to Williamson Act contracts would be both temporarily and permanently affected by the proposed action. However, electrical facilities are considered to be compatible uses under the Williamson Act. Therefore, there would be no conflict with the existing Williamson Act contracts.

Impact AG-3: Soil erosion, soil loss, and decrease in soil productivity, or other effects that would substantially impair the productive use of agricultural lands.

The proposed action, including implementation of the proposed HCP Covered Activities, have the potential to impair the productive use of agricultural lands. Potential impairment might include erosion of topsoil (by water or wind), compaction of soil, dust impacts to crops, other factors which constrain the use of equipment or pest control (ground or aerial spraying) and limit the agricultural use of the land.

Dust effects would be avoided and minimized by EC AQ-1. Erosion would be avoided and minimized by ECs GEO-1 through GEO-5. Soil compaction would be avoided and minimized by EC AG-1b. Potential obstacles to aerial spraying would be avoided and minimized by EC PH-4.

Determination

With the implementation of the proposed HCP conservation strategy, the indirect adverse effects of the proposed action on agricultural uses within and adjacent to the resource study area would be less than significant or not adverse.

Cumulative Effects of the Proposed Action

Impacts AG-1 through AG-3

To determine cumulative effects, incremental environmental effects expected from the implementation of the HCP Covered Activities would be added to the future conditions described under the No Action Alternative. Under the No Action condition, some conversion of farmland is likely to occur within the study area that is also within the City of Visalia Urban Development Area. This land is primarily Farmland of Local Importance and Vacant land, but does include Prime Farmland. This future conversion within the City of Visalia has been addressed in the City's General Plan and the Land Use Element EIR. In addition, EC AG-1a would reduce cumulative impacts of the proposed HCP and permit action.

The portion of the resource study area subject to future development (the City of Visalia) does not contain Williamson Act contracted land. There are approximately 3 acres of Williamson Act land temporarily affected by the proposed action that are in non-renewal (resulting in the gradual reduction in tax benefits and the expiration of the contract). The act of non-renewal does not indicate that a land use is proposed that would conflict with other Williamson Act contracts or otherwise adversely affect other farmland.

The indirect effects described in Impact AG-3 primarily occur as a result of implementing proposed HCP construction Covered Activities along the urban–rural edge. Other reasonably foreseeable construction projects within the resource study area would include dust and runoff control measures as required by state and local regulations. Other reasonably foreseeable proposed urban development within the resource study area is consistent with County and City general plans, which contain measures to reduce urban–agricultural conflicts. Other reasonably foreseeable planned development within the study area would not extend into intensively farmed areas of the County.

Determination

The Service evaluated the effects of past and present other projects to describe the existing condition of agricultural resources in the resource study area, as summarized in Section 5.1, Affected Environment. Then the Service evaluated the effects of the reasonably foreseeable other projects, as summarized in Chapter 3 and in Section 5.3.2, No Action Alternative). Finally, the Service added the incremental effects of the proposed action, as described in Section 5.3.3 to those other effects. The Service concludes that the small incremental effects of the proposed HCP and permit action on the agricultural resources in this resource study area, when added to the effects of the past, present, and reasonably foreseeable future projects do not meet the identified thresholds of significance and do not result in a significant or adverse cumulative effect.

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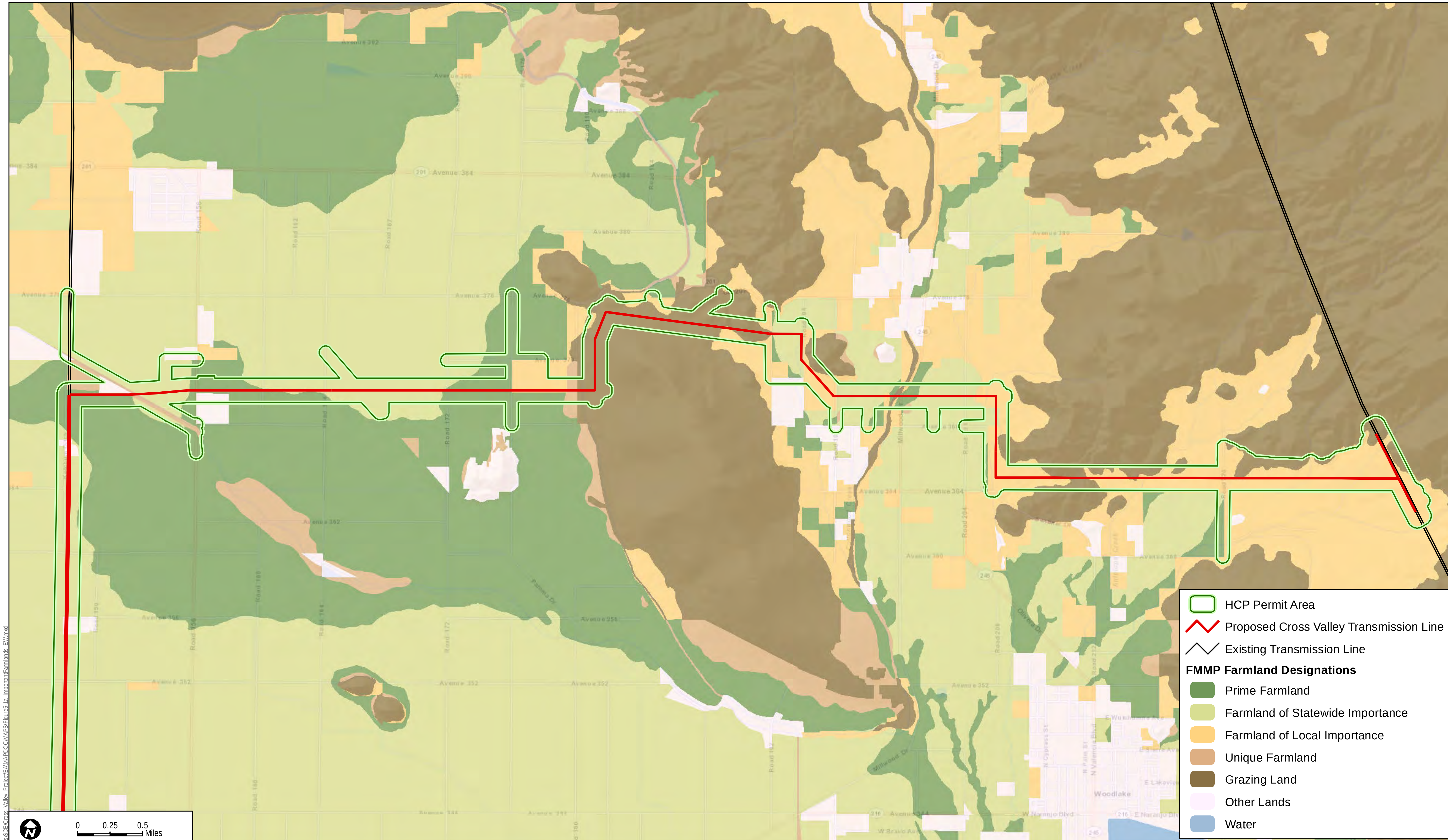

SOURCE: SCE 2013, CA Dept. of Conservation 2010, ESRI Online

FIGURE 5-1a

FMMP Important Farmlands (E-W Alignment)

EA

CROSS VALLEY TRANSMISSION LINE HABITAT CONSERVATION PLAN ENVIRONMENTAL ASSESSMENT

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HCP Permit Area
Proposed Cross Valley Transmission Line
Existing Transmission Line

FMMP Farmland Designations

Prime Farmland
Farmland of Statewide Importance
Farmland of Local Importance
Unique Farmland
Grazing Land
Other Lands
Water

0 0.5 1 Miles

SOURCE: SCE 2013, CA Dept. of Conservation 2010, ESRI Online

FIGURE 5-1b

FMMP Important Farmlands (N-S Alignment)

EA

CROSS VALLEY TRANSMISSION LINE HABITAT CONSERVATION PLAN ENVIRONMENTAL ASSESSMENT

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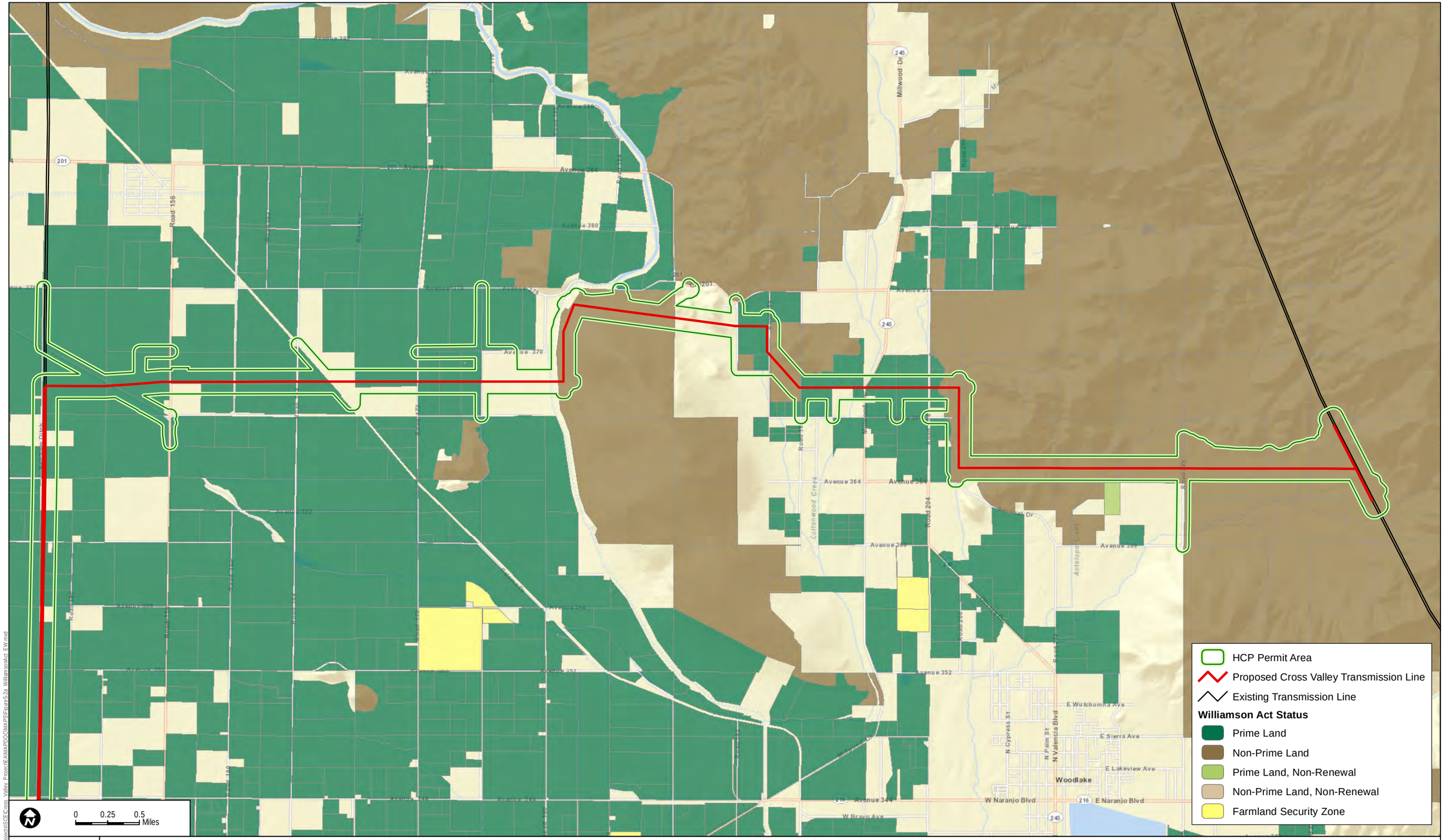

SOURCE: SCE 2013, CA Dept. of Conservation 2010, ESRI Online

FIGURE 5-2a

Williamson Act Contracted Lands (E-W Alignment)

EA

CROSS VALLEY TRANSMISSION LINE HABITAT CONSERVATION PLAN ENVIRONMENTAL ASSESSMENT

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HCP Permit Area
Proposed Cross Valley Transmission Line
Existing Transmission Line

Williamson Act Status

Prime Land
Non-Prime Land
Prime Land, Non-Renewal
Non-Prime Land, Non-Renewal
Farmland Security Zone

0 0.5 1 Miles

SOURCE: SCE 2013, CA Dept. of Conservation 2010, ESRI Online

FIGURE 5-2b

Williamson Act Contracted Lands (N-S Alignment)

EA

CROSS VALLEY TRANSMISSION LINE HABITAT CONSERVATION PLAN ENVIRONMENTAL ASSESSMENT

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CHAPTER 6.0
HYDROLOGY AND WATER QUALITY

This chapter describes the existing conditions pertaining to hydrology and water quality and discusses applicable federal, state, and regional regulations. This section also evaluates the potential environmental consequences that could result from each alternative discussed in Chapter 2 related to hydrology and water quality.

Public and agency comments received during early public scoping (CPUC 2009) included concerns regarding impacts related to the impact and cost of constructing new water wells and moving existing pumps and wells out of the areas of construction. Questions were also raised about impacts to groundwater resources, adjudicated water rights, canal water, and groundwater and surface water that are delivered to agricultural users.

6.1 AFFECTED ENVIRONMENT

This section describes the existing hydrological setting in the HCP Permit Area, including the regulatory setting, and identifies the resources that could be affected by the proposed action. For the purposes of this analysis, the resource study area for direct effects comprises the HCP Permit Area. The area for direct effects was chosen as the area where the potential for erosion and water quality impacts would most likely occur from construction of the Covered Activities. The area for indirect effects includes the following subwatersheds, which are shown on Figure 6-1:

- Antelope Creek
- Cameron Creek
- Cottonwood Ditch-Cottonwood Creek
- Elbow Creek
- Mill Creek
- Mosquito Creek-Cross Creek
- Packwood Creek
- St. John's River
- Stone Corral Canyon-Cottonwood Creek
- Wilcox Creek-Cottonwood Creek

Regional Setting and Climate

The HCP Permit Area is located in the southern portion of the San Joaquin Valley, within the Tulare Lake hydrologic unit (or basin). In general, the resource study area encompasses the

foothills of the Sierra Nevada to the north and east, and the California Central Valley to the south and west. Elevations within the HCP Permit Area range between 350 feet in the north–south portion of the HCP Permit Area to approximately 650 feet in the foothills at the eastern portion of the HCP Permit Area (Quad Knopf 2010). Tulare County (County), including the resource study area, has a Mediterranean climate characterized by hot, dry summers and mild winters. Winter rains are interspersed with periods of cloudy, foggy, or sunny weather. The 21-year annual average (1989–2010) for precipitation occurring during these months in the vicinity of the HCP Permit Area (Visalia, California) is 10.27 inches (Quad Knopf 2012). The vicinity of Visalia, California (Lindcove, California) received approximately 5.11 inches of rainfall between May 2012 and April 2013, approximately 50% of average precipitation (CIMIS 2013).

Surface Water Hydrology and Drainage

The HCP Permit Area is located within the Tulare–Buena Vista Lakes Basin, which extends from near Fresno in the north to the foothills of the Sierra Nevada mountains and the Transverse Ranges south of Bakersfield. The entire HCP Permit Area is located within the Upper Kaweah Subbasin of the Tulare–Buena Vista Lakes Basin (Figure 6-1), which includes the 10 subwatersheds listed above.

The HCP Permit Area crosses the St. John's River and Cottonwood Creek, which are major riverine features within the Upper Kaweah Subbasin. The St. John's River crosses the HCP Permit Area just east of the City of Visalia. The river flows to the west eventually reaching the Tulare Lake Bed. The Tulare Lake Bed is essentially dry, and most of the area is now cultivated agriculture. Cottonwood Creek flows generally from northeast to southwest, crossing the HCP Permit Area east of Colvin Mountain, and is channelized as it turns west around the base of Colvin Mountain, eventually drying out approximately 3.5 miles west of the HCP Permit Area. Mill Creek, another jurisdictional waterway in the north–south portion of the HCP Permit Area, also flows into the Tulare Lake Bed. Mill Creek is channelized within the HCP Permit Area where it is spanned by the existing Transmission Line.

In the grasslands of the eastern portion of the HCP Permit Area, several small natural drainage channels are partially or completely contained within the HCP Permit Area. These channels trend northeast to southwest, and are often sinuous and short in length, having a defined bed and bank for less than a mile. The water within these channels spreads out beyond this length of defined channel and infiltrates prior to reaching a water body. Man-made features, such as canals and ditches, form a complex network in the cultivated lands of the valley floor west of the Friant–Kern Canal (Figure 6-1).

Channels in this area typically exhibit a bi-modal annual hydrograph (i.e., a runoff peak occurs in the late fall or early winter due to rainfall, and another peak occurs in the late spring or early

summer as a result of snowmelt). Most channels and drainages in the HCP Permit Area are ephemeral due to the seasonal nature of rainfall, low annual rainfall totals, irrigation demands, and the relatively high permeability of the valley floor alluvial deposits. Normally, all native surface water supplies, imported water supplies, and direct precipitation percolate into valley groundwater if not lost through consumptive use, evapotranspiration, or evaporation (CVRWQCB 2011). However, due to snowmelt runoff and their use as conveyance facilities for water purveyors and contractors, some channels experience perennial flow in some years. The tendency for channels to dry-up increases westward from the foothills. Major surface water channels in the resource study area include the Kings River, Cottonwood Creek, the Kaweah River, the St. John's River, Yokohl Creek, and the Tule River.

Kaweah River

The upper Kaweah River is impounded and controlled to some degree by the Terminus Dam, which was completed in 1962 by the U.S. Army Corps of Engineers (ACOE), forming Lake Kaweah with an approximate capacity of 150,000 acre-feet. Lake Kaweah is located near the eastern margin of the HCP Permit Area, approximately 18 miles east of the City of Visalia. The upper Kaweah River drains about 561 square miles of the Sierra Nevada and has its headwaters near the 12,000-foot elevation line.

West of the HCP Permit Area, the Kaweah River is eventually a tributary to the Tule River. As is typical of most streams in this area, the Kaweah River experiences a peak flow in winter and in the late spring or early summer. The U.S. Geological Survey (USGS) collected flow information for the upper Kaweah River (just downstream of the Terminus Dam) from 1962 through 1990. Over this time period, the largest recorded peak flow events were between 5,000 and 6,000 cubic feet per second (cfs), and most of the recorded peaks occurred in the late spring or summer as a result of snowmelt (or perhaps rain-on-snow events). Average annual flow over the monitored period ranged from 104 cfs during dry years to almost 2,000 cfs during wet years (USGS 2013). Based upon the recorded stream flow data, the Kaweah River flows perennially in most years.

Artificial Channels and Ditches

The HCP Permit Area is also traversed by a number of artificial conveyance channels and irrigation canals. Importing irrigation water into this otherwise relatively arid region is necessary for agriculture. The Tulare Irrigation District Canal and the Friant–Kern Canal are the most notable irrigation canals within the HCP Permit area. Built and maintained by the Tulare Irrigation District, the Tulare Irrigation Canal delivers water to various contractors in the western part of Tulare County. The Friant–Kern Canal is a federal project that delivers water from the San Joaquin River to contractors in Tulare County and further south. More about ditches is described below.

Surface Water Quality

The quality of surface water in the HCP Permit Area is generally high; this includes water from streams feeding onto the valley floor as well as the water introduced into the Kaweah River watershed from the Friant-Kern Canal (County of Tulare 2010). Streams running through the HCP Permit Area are draining the western slopes of the Sierra Nevada; in this area, the dominance of granitic rocks and relatively undisturbed (i.e., undeveloped) and protected (e.g., Sequoia National Park) landscapes generally results in good quality surface water. However, in some areas the water quality effects of past land use practices, such as mining and logging, persist.

The Central Valley Regional Water Quality Control Board (CVRWQCB) is responsible for the protection of water quality and beneficial uses of waters within Tulare County, including the resource study area. The CVRWQCB has yet to identify any impairments with the resource study area. However, just east of the resource study area, the CVRWQCB has identified a water quality issue for Lake Kaweah related to the presence of mercury, although the potential sources of the mercury have not been identified (CVRWQCB 2010). The CVRWQCB (2010) has also identified water quality issues for the lower Kings River related to electrical conductivity, molybdenum, and toxaphene; the source of these constituents is identified as agriculture. Regulatory frameworks, standards, and management actions concerning water quality in the resource study area are discussed in further detail below.

Jurisdictional Features in the HCP Permit Area

Fifteen types of wetlands and other waters, grouped into five categories based on land cover (see Section 7.1.1), were identified within the HCP Permit Area (Tables 6-1 and 6-2). Wetlands or California Department of Fish and Wildlife (CDFW) riparian habitat that are present include portions of ponding basins, ditches, portions of the rivers (riverine), and various vernal pool categories. Non-wetland features found to be present include non-wetland ephemeral pools and swales, river and creek, natural drainage channels, non-wetland ditches, lined canals, stock ponds, and farm ponding basins.

Basin/Stock Pond

Delineated features that fall within the basin/stock pond category include ponding basins, ponding basins with overflow areas, and stock ponds. One stock pond occurs within native lands of the eastern portion of the HCP Permit Area. It is classed as PUBX (Palustrine Unconsolidated Bottom, excavated). This pond occurs on Vista Coarse Sandy Loam. At the time of the delineation it had no vegetation and was about half of its maximum volume. Ponding basins (PUBK—Palustrine Unconsolidated Bottom, artificially flooded) and stock ponds were found within the HCP Permit Area. These features are associated with cultivated lands or urban areas.

These occur on a variety of soil types, including Grangeville Silt Loam, Lewis Clay Loam, Yettem Sandy Loam, and Grangeville Sandy Loam. The ponds ranged from unvegetated or vegetated with ruderal species and completely dry to unvegetated and full of water, to completely vegetated with cattails (*Typha* spp.) and supporting standing water. Generally, these ponds had inlet and/or outlet pipes and many of them appeared to be regularly maintained. The ordinary high water marks (OHWMs) used to measure the limits of these basins where the presence of debris and or evidence of water flows. The OHWM is defined as the "line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas" (33 CFR 328.3(e)).

Ditch

Three types of ditches were delineated within the HCP Permit Area: ditch, drainage channel, and wetland ditch. Ditches refer to the numerous irrigation ditches occurring within the HCP Permit Area, which are part of the extensive irrigation system of Tulare County. These are artificial features that do not exhibit wetland characteristics. Ditches were generally observed to be associated with diverting flows along, off of, or away from roads and generally supported ruderal, if any, vegetation. Ditches generally run along and/or under adjacent roads, have a small OHWM, often appeared disturbed and were associated with smaller culverts. The OHWMs for the ditches ranged from 1 –3 feet and were evidenced by drift and/or debris and/or the presence of bed and bank. In most cases, it was not easily observed if the ditches continued on to connect to another feature downstream. However, some ditches did connect to larger downstream features, such as Cottonwood Creek.

Several small drainage channels are present in the HCP Permit Area. Some features occur within native lands and consist of natural drainage channels with defined bed and bank. Many of the features were dry at the time of the delineation and are classified as intermittent features. Other drainage channels were generally observed to be associated with agriculture drainage or natural drainages that had been impacted by agriculture or the presence of cattle. The channels were larger in size, had larger OHWMs, and generally supported ruderal, if any, vegetation. The OHWMs of drainage channels ranged from 1 to larger than 12 feet and were evidenced by drift and/or debris and/or the presence of bed and bank. Many of these features ran along agricultural properties and crossed under the access roads through multiple sites. The drainage channels were generally larger in size using the OHWM and had large culverts, indicating the capability for managing much larger flows.

One small portion of a ditch formed by the berm of an olive orchard met the formal wetland criteria and is therefore categorized as a wetland ditch. This artificial feature (Palustrine

Emergent or PEMC) is on San Joaquin loam and totals 0.02 acre. Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), curly dock (*Rumex crispus*), and toad rush (*Juncus bufonius)* compose its hydrophytic indicators.

Lined Canals

Lined canals occurring on the transmission line corridor are large ditches lined with either concrete or riprap. The largest of these features is the Friant-Kern Canal.

Puddle

Quad Knopf defines puddles as small, isolated depressions (either artificial or natural in origin) that do not support hydrophytic plants (as defined by U.S. Army Corps of Engineers (ACOE 1987, 2008) and U.S. Fish and Wildlife Service (Service 1996)), and are located in or adjacent to roads, in agricultural land cover, or in annual grassland land cover that become inundated for relatively short periods of time (i.e., 1–3 weeks) after larger rainstorms. Most commonly, these are ruts created by vehicles, but also include some natural depressions. They do not support hydrophytic vegetation, and along roads and in agricultural areas they are generally unvegetated.

Riverine

The HCP Permit Area contains two riverine systems, the St. John's River and Cottonwood Creek. Both of these are bordered by riparian land cover type but otherwise flow through a landscape dominated by agricultural land cover. Both of these are classified as RUB (Riverine Unconsolidated Bottom) and are located in otherwise cultivated lands. At the time that this delineation was conducted, the St. John's River was flowing at its ordinary high water level, but Cottonwood Creek was dry.

Vernal Pool

Six vernal pool categories were delineated within the HCP Permit Area and include ephemeral pools and depressions, swales, vernal depression, one vernal pool complex, and two potential vernal pools.

Vernal pool features located within the HCP Permit Area are classified by the Cowardin system as PEMC (Palustrine Emergent, seasonally flooded), and are usually found to have a duripan layer that promotes ponding in the rainy season. These features are located in non-native grasslands occurring within the eastern 8-mile portion of the transmission line corridor. Soil types associated with these features are San Joaquin loam, Grangeville silt loam, Exeter loam, Porterville clay, and one pool was found on the Coarsegold rock outcrop complex. Typical

hydrophytic indicators include spiny-sepaled button celery (*Eryngium spinosepalum*), Mediterranean barley, and spikerush (*Eleocharis macrostachya*).

Vernal pools in the HCP Permit Area receive or discharge water to drainage pathways called vernal swales. The vernal swales within the HCP Permit Area usually occur within non-native grassland habitat and are dominated by annual forbs, and, in some areas, grasses intermixed with perennial forbs.

CDFW Jurisdiction

Areas under the jurisdiction of the CDFW include 26.46 acres of riparian habitat and 27.70 acres of unvegetated streambed, for a total of 54.16 acres of features under the jurisdiction of the CDFW (Table 6-1, Figures 6-2a through 6-2k).

Table 6-1
CDFW Jurisdictional Features within the HCP Permit Area

Jurisdictional Feature	Riparian Habitat	Unvegetated Streambed	Total
Basin/Stock Pond			
Ponding Basin	0.09	7.06	7.15
Ponding Basin with Overflow Area	—	0.44	0.44
Stock Pond	—	0.09	0.09
Basin/Stock Pond Total	*0.09*	*7.60*	*7.69*
Ditch			
Ditch	0.40	3.84	4.24
Drainage Channel	16.41	3.37	19.78
Wetland Ditch	0.02	—	0.02
Ditch Total	*16.82*	*7.22*	*7.69*
Lined Canal			
Lined Canal	—	7.40	7.40
Puddle			
Drainage Channel	—	<0.01	<0.01
Puddle Total	—	*<0.01*	*<0.01*
Riverine			
River	2.81	1.63	4.43
Creek	1.65	3.24	4.90
Riverine Total	*4.46*	*4.87*	*9.33*
Vernal Pool			
Ephemeral Depression	0.01	—	0.01
Ephemeral Pool	2.21	—	2.21
Swale	2.44	<0.01	2.45
Vernal Depression	0.02	—	0.02
Vernal Pool Complex	0.32	—	0.32
Vernal Pool (potential)	0.07	0.61	0.68
Vernal Pool Total	*5.08*	*0.62*	*5.70*
Grand Total	26.46	27.70	54.16

ACOE/RWQCB Jurisdiction

Areas under the jurisdiction of the ACOE/RWQCB include 20.22 acres of non-wetland features and 11.72 acres of wetland features (Table 6-2, Figures 6-2a through 6-2k). Some features are under the sole jurisdiction of the RWQCB and total 1.93 acres of non-wetland features and 1.86 acres of wetland features (Table 6-2).

Table 6-2
RWQCB and ACOE Jurisdictional Features within the HCP Permit Area

Jurisdictional Feature	RWQCB Only		RWQCB/ACOE		Total
	Non-Wetland	*Wetland*	*Non-Wetland*	*Wetland*	
Basin/Stock Pond					
Ponding Basin	—	0.09	2.67	8.34*	11.11
Ponding Basin with Overflow Area	—	—	0.44	—	0.44
Stock Pond	0.06	—	0.03	—	0.09
Basin/Stock Pond Total	0.06	0.09	3.15	8.34*	11.64
Ditch					
Ditch	—	—	4.25	—	4.25
Drainage Channel	1.87	0.04	4.12	<0.01	6.04
Wetland Ditch	—	—	—	0.02	0.02
Ditch Total	1.87	0.04	8.38	0.03	10.31
Lined Canal					
Lined Canal	—	—	1.18	—	1.18
Puddle					
Drainage Channel	—	—	<0.01	—	<0.01
Ponding Basin	—	—	<0.01	—	<0.01
Puddle Total	—	—	*<0.01*	—	*<0.01*
Riverine					
River	—	—	2.86	—	2.86
Creek	—	—	2.76	—	2.76
Riverine Total	—	—	*5.62*	—	*5.62*
Vernal Pool					
Ephemeral Depression	—	—	—	0.01	0.01
Ephemeral Pool	—	0.34	0.39	1.87	2.60
Swale	—	1.40	0.89	1.05	3.34
Vernal Depression	—	—	—	0.02	0.02
Vernal Pool Complex	—	—	—	0.32	0.32
Vernal Pool (potential)	—	—	0.61	0.07	0.68
Vernal Pool Total	—	*1.74*	*1.89*	*3.35*	*6.97*
Grand Total	1.93	1.86	20.22	11.72	35.73

Note: *Includes 1.36 acres ponding basins that have been confirmed to be under the jurisdiction of RWQCB and ACOE, but due to access issues, it has not been determined these two areas are wetland or non-wetland features.

Flooding

Flooding within the HCP Permit Area (e.g., near the City of Visalia) is controlled to some degree by Terminus Dam on the Kaweah River (described above), yet flooding still occurs and the flood zones are several miles wide in some areas (Figure 6-3). The Federal Emergency Management Agency (FEMA) is responsible for mapping areas subject to flooding during a 100-year flood event (i.e., 1% chance of occurring in a given year). According to FEMA (2008), several flood zones intersect the HCP Permit Area and alignment; the principal flood zones are associated with the Kaweah River, the St. John's River, and Yokohl Creek.

Groundwater Hydrology

The San Joaquin Valley is a geologic depression formed between two uplifted areas: the Coast Range on the west and the Sierra Nevada to the east. The valley has been filled by almost 4 miles of sedimentary material, most of which contains water too saline for domestic use (County of Tulare County 2010). Recent alluvial deposits characterizing the upper layer (to a depth of approximately 3,000 feet) of sedimentary material comprise an extensive underground reservoir of fresh water.

The HCP Permit Area overlies the northeast portion of Kaweah Groundwater Subbasin (Kaweah Subbasin), which is part of the larger San Joaquin Valley Groundwater Basin (DWR 2004). The Kaweah Subbasin lies between the Kings Groundwater Subbasin on the north, the Tule Groundwater Subbasin on the south, crystalline bedrock of the Sierra Nevada foothills on the east, and the Kings River Conservation District on the west. The Kaweah Subbasin generally comprises lands in the Kaweah Delta Water Conservation District (KDWCD). Groundwater flow is generally southwestward, from areas of recharge along the eastern side of the San Joaquin Valley westerly toward the valley trough. On the east side of the Kaweah Subbasin, the sedimentary deposits comprising the subbasin consist of material derived from the Sierra Nevada and are divided into three stratigraphic units: continental deposits, older alluvium, and younger alluvium. For the most part, accessible groundwater occurs within an unconfined state throughout the HCP Permit Area (usually coincident with the extent of modern alluvial fan deposits), while localized areas of semi-confined groundwater occur sporadically.

On average, the Kaweah Subbasin water level has declined by about 12 feet from 1970 through 2000 (DWR 2004). It is estimated that groundwater in the Tulare Basin is over-drafted by approximately 820,000 acre-feet per year (County of Tulare 2010). Groundwater flow in northwestern Tulare County tends to flow away from the Kaweah River and ranges in depth from 30 –80 feet below ground surface (SCE 2008).

Groundwater Quality

The groundwater in the Kaweah Subbasin is generally of a calcium bicarbonate type, with sodium bicarbonate waters occurring near the western margin. The mineral quality of groundwater extracted for use in Tulare County is generally satisfactory for crop irrigation. Total dissolved solids (TDS) values range from 35 –1,000 milligrams per liter (mg/L), with a typical range of 300 –600 mg/L (DWR 2004). The salinity of groundwater typically increases in a westward direction across the San Joaquin Valley. There are localized areas of high nitrate pollution on the eastern side of the subbasin; there is also high salinity between the cities of Lindsay and Exeter.

Under natural conditions, groundwater moves from recharge areas along the sides of the San Joaquin Valley toward the low (or central) section where it is discharged at the land surface by seepage, evaporation, and transpiration. The great alkali areas of the southwestern parts of the County indicate natural discharge of groundwater by evaporation has occurred, leaving an accumulation of salts in the surface soils (County of Tulare 2010). Because of the closed nature of the Tulare Lake Basin, there is little net loss of groundwater through subsurface outflow. As such, salts accumulate within the basin due to importation and subsequent evaporation of surface water. The principle water quality problem in the basin is the accumulation of salts; this problem is compounded by the overdraft of groundwater for municipal, agricultural, and industrial purposes, and the use of water from deeper formations and outside the basin which further concentrates salts within the remaining groundwater (CVRWQCB 2011).

6.2 IMPACT ANALYSIS REGULATORY FRAMEWORK

Federal Regulations

Federal Clean Water Act

Increasing public awareness and concern for controlling water pollution led to enactment of the Federal Water Pollution Control Act Amendments of 1972. As amended in 1977, this law became commonly known as the Clean Water Act (CWA). The act establishes basic guidelines for regulating discharges of pollutants into waters of the United States. The CWA requires that states adopt water quality standards to protect public health, enhance the quality of water resources, and ensure implementation of the CWA.

Section 404 provides for issuance of dredge/fill permits by the ACOE. Permits typically include conditions to minimize impacts on water quality. Common conditions include: (1) ACOE review and approval of sediment quality analysis before dredging, (2) a detailed pre- and post-construction monitoring plan that includes disposal site monitoring, and (3) requiring

compensation for loss of waters of the United States. The areas of the HCP Permit Area that occur below mean higher high water would be subject to regulation under Section 404.

Section 303(d) – List of Impaired/TMDL Waters

Section 303(d) requires that states assess the quality of their waters every 2 years and publish a list of those waters not meeting the water quality standards established for them. Such waters are then identified as being an "impaired water body." For water bodies placed on the 303(d) List of Water Quality Limited Segments, states are required to develop Total Maximum Daily Loads (TMDLs) for the pollutant(s) that are causing impairment of the water quality standards. Once a water body is placed on the 303(d) List of Water Quality Limited Segments, it remains on the list until a TMDL is adopted and the water quality standards are attained or there is sufficient data to demonstrate that water quality standards have been met and delisting from the 303(d) list should take place. A TMDL defines how much of a specific pollutant a given water body can tolerate and still meet relevant water quality standards.

Kaweah Lake and the lower Kings River are listed as impaired water bodies, as designated by the CVRWQCB (2010), including pollutants and issues of concern. To date, a TMDL has not been developed for Kaweah Lake or for the lower Kings River.

Section 401 - Water Quality Certification

Section 404 of the CWA requires a permit from the ACOE prior to discharging dredged or fill material into waters of the United States, unless such a discharge is exempt from CWA Section 404. The term "waters of the United States" as defined in the Code of Federal Regulations (40 CFR 230.3[s]) includes all navigable waters and their tributaries. In addition, Section 401 of the CWA requires that an applicant for any federal permit (e.g., an ACOE 404 permit) obtain certification from the state that the discharge will comply with other provisions of the CWA and with state water quality standards. For the HCP Permit Area, the CVRWQCB or State Water Resources Control Board (SWRCB) (in the case of activities associated with water diversions) must provide the water quality certification required under Section 401 of the CWA. A jurisdictional determination has been requested of the ACOE; if a federal permit is required, then Southern California Edison (SCE) would also be required to obtain water quality certification from the CVRWQCB.

Section 402 - NPDES Program

The National Pollutant Discharge Elimination System (NPDES) permit program, as authorized by Section 402 of the CWA, was established to control water pollution by regulating point sources that discharge pollutants into waters of the United States. In the State of California, the Environmental Protection Agency (EPA) has authorized the SWRCB permitting authority to implement the NPDES program. In general, the SWRCB issues two baseline general permits:

one for industrial discharges and one for construction activities. In 1990, the EPA promulgated rules establishing Phase I of the NPDES stormwater program for categories of stormwater discharge including "medium" and "large" Municipal Separate Stormwater Sewer Systems (MS4s), which generally serve populations of 100,000 or greater. The Phase II Rule that became final on December 9, 1999, expanded the existing NPDES program to address stormwater discharges from construction sites that disturb land equal to or greater than 1 acre and "small" MS4s. For projects disturbing 1 or more acres of land, the applicant must file a Notice of Intent (NOI) for coverage under the General Permit for Stormwater Discharges Associated with Construction Activity (General Permit) and prepare a Stormwater Pollution Prevention Plan (SWPPP) that specifies best management practices (BMPs) to prevent pollutants from contacting stormwater and procedures to control erosion and sedimentation.

Section 404 - Wetlands

Section 404 requires applicants obtain a permit from the ACOE to place dredged or fill material into aquatic sites within CWA jurisdiction including wetlands, streams, and open waters. The CWA Section 404(b)(1) Guidelines (40 CFR 230, Subparts B–F) requires a sequencing process to first avoid, then minimize, and finally provide compensatory mitigation for impacts to aquatic resources during the CWA Section 404 permit process. Permits typically include conditions to minimize impacts on water quality. Common conditions include: (1) ACOE review and approval of sediment quality analysis before dredging, (2) a detailed pre- and post-construction monitoring plan that includes disposal site monitoring, and (3) requiring compensation for loss of waters of the United States.

National Flood Insurance Act

The National Flood Insurance Act of 1968 established the National Flood Insurance Program in order to provide flood insurance within communities that were willing to adopt floodplain management programs to mitigate future flood losses. The act also required the identification of all floodplain areas within the United States and the establishment of flood-risk zones within those areas. The Federal Emergency Management Agency (FEMA) is the primary agency responsible for administering programs and coordinating with communities to establish effective floodplain management standards. FEMA is responsible for preparing Flood Insurance Rate Maps that delineate the areas of known special flood hazards and their risk applicable to the community.

State Regulations

California Department of Fish and Wildlife Fish and Game Code

Pursuant to Section 1602 of the Fish and Game Code, the CDFW regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake

that supports fish or wildlife. A Streambed Alteration Agreement (SAA) is required for impacts to jurisdictional riparian habitat and unvegetated streambeds in accordance with Section 1602 of the California Fish and Game Code.

California Water Code

The California Water Code (CWC) governs the use, discharge to, and management of water resources throughout the state.

Porter–Cologne Water Quality Control Act

The Porter–Cologne Act, also known as Division 7 of the CWC, is the basic water quality control law for California. The goal of the Porter–Cologne Act is to create a regulatory program to protect water quality and beneficial uses of the state's waters. As such, the state and regional boards were established to implement and enforce the CWA and state-adopted water quality control plans.

The Porter–Cologne Act (codified in the California Water Code, Section 13000 et seq.) is the basic water quality control law for California. As mentioned above, it is implemented by the SWRCB and the nine Regional Water Quality Control Boards (RWQCBs). The SWRCB establishes statewide policy for water quality control and provides oversight of the RWQCBs' operations. The RWQCBs have jurisdiction over specific geographic areas that are defined by watersheds. Tulare County is under the jurisdiction of the CVRWQCB. In addition to other regulatory responsibilities, the RWQCBs have the authority to conduct, order, and oversee investigation and cleanup where discharges or threatened discharges of waste to waters of the state could cause pollution or nuisance, including impacts to public health and the environment.

State Water Resources Control Board

The SWRCB is responsible for issuing stormwater permits in accordance with the NPDES program. For projects disturbing 1 or more acres of land, the applicant must file an NOI for coverage under the General Permit for Stormwater Discharges Associated with Construction Activity (General Permit) and prepare an SWPPP that specifies BMPs to prevent pollutants from contacting stormwater and procedures to control erosion and sedimentation. The SWRCB provides state-level coordination of the water quality control program by establishing statewide policies and plans for the implementation of state and federal regulations. The nine RWQCBs throughout California adopt and implement water quality control plans that recognize the unique characteristics of each region with regard to natural water quality, actual and potential beneficial uses, and water quality problems. The RWQCB adopts and implements a Water Quality Control Plan (hereinafter Basin Plan) that designates beneficial uses, establishes water quality objectives,

and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan (California Water Code, Sections 13240–13247).

General Construction Permit (Order 99-08-DWQ)

While federal regulations allow two permitting options for stormwater discharges (individual permits and General Permits), the SWRCB has chosen to adopt only one statewide General Permit at this time that would apply to all stormwater discharges associated with construction activity. This General Permit requires all dischargers where construction activity disturbs one acre or more, to:

- Develop and implement an SWPPP which specifies BMPs that would prevent all construction pollutants from contacting storm water and with the intent of keeping all products of erosion from moving off site into receiving waters
- Eliminate or reduce non-stormwater discharges to storm sewer systems and other waters of the nation
- Perform inspections of all BMPs.

This General Permit is implemented and enforced by the nine RWQCBs. The CVRWQCB administers the stormwater permitting program in the section of Tulare County that includes the resource study area. Dischargers are required to submit an NOI to obtain coverage under this General Permit and annual reports identifying deficiencies of the BMPs and how the deficiencies were corrected. Dischargers are responsible for notifying the relevant RWQCB of violations or incidents of noncompliance.

If the project is approved, SCE will submit an NOI to the SWRCB and obtain coverage under the General Permit. The preparation of an SWPPP would be required in accordance with the General Permit. The SWPPP would include, but not be limited to, relevant measures, conditions, and obligations which would reduce the impacts of construction activities on stormwater and receiving water quality and quantity.

Local Regulations

Regional Water Quality Control Board

Beneficial Use and Water Quality Objectives (CWA Section 303)

The CVRWQCB is responsible for the protection of the beneficial uses of waters within Tulare County and the HCP Permit Area. The CVRWQCB uses its planning, permitting, and enforcement authority to meet this responsibility and has adopted the Water Quality Control Plan

for the Tulare Lake (Basin Plan) to implement plans, policies, and provisions for water quality management. The CVRWQCB was last amended in October 2011 (CVRWQCB 2011).

In accordance with state policy for water quality control, the CVRWQCB employs a range of beneficial use definitions for surface waters, groundwater basins, marshes, and mudflats that serve as the basis for establishing water quality objectives and discharge conditions and prohibitions. The Basin Plan has identified existing and potential beneficial uses supported by the key surface water drainages throughout its jurisdiction (CVRWQCB 2011). For groundwater, the following beneficial uses have been identified and occur throughout the Tulare Lake Basin (including the resource study area): municipal and domestic supply, agricultural supply, industrial service supply, industrial process supply, water contact recreation, and wildlife habitat. The Basin Plan also includes water quality objectives that are protective of the identified beneficial uses; the beneficial uses and water quality objectives collectively make-up the water quality standards for a given region and Basin Plan (CVRWQCB 2011). Within the resource study area, agricultural supply is an important and prevalent beneficial use of surface water and groundwater. The CVRWQCB is charged with protecting the quality of surface water and groundwater that may be diverted or extracted (or otherwise captured) and used for agricultural supply. However, the CVRWQCB does not exercise authority over the maintenance or condition of water delivery infrastructure (e.g., pipelines, canals, ditches, etc.). Therefore, any issues concerning the potential damage to water delivery infrastructure as a result of the proposed action or alternatives would be resolved between SCE and the appropriate landowner or entity during acquisition of project right-of-way.

Waiver for Dewatering and Discharge to Land (CVRWQCB Resolution R5-2003-0008)

The CVRWQCB has adopted a waiver of Waste Discharge Requirements (WDR) (Resolution R5-2003-0008) for specific types of low-threat discharges to the land surface with the Central Valley region. Construction dewatering is among the activities covered by this waiver. Waivers serve much the same purpose as general permits (i.e., they are intended to describe a range of protective measures that could be applied to a broad category of activities). SCE would apply for and obtain this waiver from the CVRWQCB for their actions involving dewatering.

Floodway Encroachment (Central Valley Flood Protection Board)

The California Department of Water Resources (DWR), Central Valley Flood Protection Board (CVFPB; formerly the Reclamation Board), regulates the design and construction of encroachments which may affect flood control works and floodways along the Sacramento and San Joaquin rivers and their tributaries. The CVFPB has jurisdiction over any project that proposes to work in a regulated stream, designated floodway, on federal flood control project levee slopes, or within 10 feet of the levee toe; this includes projects related to the installation of pipelines, conduits, and utility lines. Approval by the CVFPB is required for projects or uses

which encroach into rivers, waterways, and floodways within and adjacent to federally and state-authorized flood control projects and within designated floodways adopted by the CVFPB. Portions of the proposed action fall within the designated floodways of the St. John's River and/or Cottonwood Creek, and SCE would be required to consult with and obtain (if necessary) an encroachment permit (or waiver) from the CVFPB.

Tulare County General Plan

The following policies identified in the Water Resources Element of the Tulare County General Plan may be applicable to the proposed action and alternatives (County of Tulare 2012).

Water Resources Element

Goal WR-1: To provide for the current and long-range water needs of the County and for the protection of the quality and quantity of surface and groundwater resources.

Policy WR-1.2: The County shall support the collection of monitoring data for facilities or uses that are potential sources of groundwater pollution as part of project approvals, including residential and industrial development.

Policy WR-1.10: Channel modification shall be discouraged in streams and rivers where it increases the rate of flow, rate of sediment transport, erosive capacity, or has an adverse effect on aquatic life or modifies necessary groundwater recharge.

Goal WR-2: To provide for the current and long-range water needs of the County and for the protection of the quality of surface water and groundwater resources.

Policy WR-2.1: All major land use and development plans shall be evaluated as to their potential to create surface and groundwater contamination hazards from point and non-point sources. The County shall confer with other appropriate agencies, as necessary, to assure adequate water quality review to prevent soil erosion; direct discharge of potentially harmful substances; ground leaching from storage of raw materials, petroleum products, or wastes; floating debris; and runoff from the site.

Policy WR-2.2: The County shall continue to support the state in monitoring and enforcing provisions to control non-point source water pollution contained in the U.S. EPA NPDES program as implemented by the Water Quality Control Board.

Policy WR-2.3: The County shall continue to require the use of feasible BMPs and other mitigation measures designed to protect surface water and groundwater

from the adverse effects of construction activities and urban runoff in coordination with the Water Quality Control Board.

Policy WR-2.4: The County shall continue to enforce provisions to control erosion and sediment from construction sites.

Policy WR-2.8: The County shall work with the Regional Water Quality Control Board to ensure that all point source pollutants are adequately mitigated (as part of the California Environmental Quality Act review and project approval process) and monitored to ensure long-term compliance.

City of Visalia General Plan

The following policies identified in the Conservation, Open Space, Recreation, and Parks Element of the City of Visalia General Plan may be applicable to the proposed action and alternatives (City of Visalia 1989).

Policy 1.2.1: Protect, and where necessary, restore and enhance a continuous corridor of native riparian vegetation along planning area waterways.

6.3 ENVIRONMENTAL CONSEQUENCES

6.3.1 Methodology for Impact Analysis

The project setting was developed by reviewing available information on hydrology and water quality in the resource study area. This review was supplemented with geographic information system (GIS) data for identifying hydrologic resources. Using GIS, these resources were overlaid on the proposed alignment and HCP Permit Area to see if there was overlap. If there was overlap, an assessment of the potential for impacts was conducted using GIS.

Identifying the Threshold of Significance

This EA adapted criteria set forth in the CEQA Guidelines to determine if significant impacts would result from implementation of the proposed HCP. For the purposes of this Environmental Assessment (EA), an alternative would have a significant impact related to hydrology and water quality if it would:

- Substantially deplete groundwater supplies
- Substantially increase erosion or siltation associated with alteration of existing drainage patterns
- Substantially increase the rate or amount of surface runoff
- Substantially degrade water quality

- Substantially adversely affect federally and state regulated jurisdictional features
- Create substantial flood hazards.

6.3.2 No Action Alternative

Direct and Indirect Effects

Under the No Action Alternative, the proposed HCP, including Covered Activities, would not be implemented, and hydrology and water quality would remain the same as existing conditions (see Section 6.1). Under the No Action Alternative, the Cross Valley Transmission Line would not be constructed and the existing risk of a voltage collapse area and risk of extended outages of electrical power within the Electrical Needs Area, including the Cities of Tulare, Visalia, Hanford, Farmersville, Exeter, Woodlake, and the surrounding areas of Tulare County would increase over time, as new urban growth and development continues with build-out of the Tulare County General Plan 2030 (County of Tulare 2012) and build-out of the Kings County General Plan 2035.

Under this alternative, the potential exists that future development in the HCP Permit Area could occur that is compatible with existing land uses. Hydrology and water quality-related impacts associated with individual future development projects would be addressed by the California Environmental Quality Act (CEQA) on a case-by-case basis. Individual development projects would potentially provide mitigation for any impact to hydrology and water quality.

Determination

Under the No Action Alternative, the proposed HCP and Covered Activities would not be implemented and the Cross Valley transmission line would not be constructed. Therefore, there would be no adverse hydrology or water quality effects under the No Action Alternative.

6.3.3 Proposed Action Alternative

Direct and Indirect Effects

Impact HYD-1: Potential to substantially deplete groundwater supplies.

As discussed above, the groundwater basins underlying the resource study area are relatively large, predominantly unconfined, and heavily impacted by existing agricultural demands (e.g., the annual overdraft within the Tulare Lake groundwater basin [County of Tulare 2010]). Groundwater within the HCP Permit Area could be as shallow as 30 feet. Therefore, the proposed transmission line excavations (up to 60 feet) could encounter groundwater in select locations, in which case dewatering would be necessary. Where the groundwater table is

relatively shallow, some groundwater seepage may occur into pole excavation or auger holes requiring dewatering immediately prior to pole placement and installation. A dewatering plan would be prepared and the water would be pumped into a container truck and disposed of off site at an acceptable disposal site, consistent with the SWPPP. Additionally, groundwater use is not proposed for construction or operational activities of the transmission line, and the Covered Activities under the HCP would have negligible impacts upon existing groundwater supplies. As part of the HCP, a dewatering plan is required and no significant adverse impacts to groundwater supplies would occur.

Impact HYD-2: Potential to substantially increase erosion or siltation associated with alteration of existing drainage patterns.

Construction activities that disturb the ground near or within a stream channel (e.g., clearing and grading) could make soils and sediments more susceptible to erosion by altering their existing structure or state. Depending on the distance and ground slope, increased erosion rates could lead to increased sediment concentrations and turbidity levels in the receiving stream channel. Further, moderate increases in surface runoff from construction areas could initiate or exacerbate an erosion and sediment delivery problem. An increase in the runoff rate from a construction area may result from temporarily decreasing ground surface resistance to overland flow (e.g., clearing of native vegetation or slope grading), decreasing the infiltration capacity of the soil by means of compaction (e.g., with heavy equipment), or by increasing the velocity of runoff (e.g., concentrating flow into manmade features or into existing rills or gullies).

Actions associated with the proposed transmission line that include notable construction components include installation of new lattice towers, installation of new poles, installation of access roads, and use of laydown yards. Specific construction activities referenced under this potential impact include, but are not limited to, clearing and grading, excavation work, and the stockpiling of soil or sediments. The area of disturbance would not be concentrated in one or two locations, but rather spread throughout the entire HCP Permit Area at specific locations along the alignment.

Roads commonly lead to increases in the volume of surface runoff as well as increases in erosion and sediment delivery. This is attributable to the fact that road installation substantially reduces the infiltration capacity of soils and disturbs the existing soil structure, making the soil more susceptible to erosion and entrainment by runoff.

A total of 8 miles of new access roads would be installed, some very near to existing surface water channels such as Antelope Creek and tributaries to Antelope Creek; some roads would be installed on slopes exceeding 25%. Construction of the proposed transmission line, in disturbing the ground and hillsides during construction activities, may alter existing drainage pathways so as to make

surface soils more susceptible to erosive forces (i.e., overland flow) and/or generate enough increased runoff through removal/clearing of existing vegetation to increase surface erosion.

SWPPP BMPs would be installed including materials and temporary structures around all facility footprints and work disturbance areas to ensure that stormwater runoff associated with construction is controlled. These BMPs may include temporary structures such as check dams, silt fences, fiber rolls, gravel bag berms, sandbag barriers, covers of plastic sheeting on stockpiled materials, and stabilized entrances/exits to facility footprints and low and high work disturbance areas. In conjunction with other operation and maintenance Covered Activities, these BMPs would be installed along the perimeter of all facility footprints and work areas (including both low- and high-disturbance work areas) to prevent runoff from leaving construction sites without infiltrating into the soil. BMPs would remain in place until construction is complete and the soil surface has been effectively stabilized, or until other means of controlling runoff and excessive erosion have been implemented (e.g., mulch installed during revegetation).

In addition, ECs GEO-1 and GEO-2 in Chapter 4, Soils and Geology, would reduce the amount of erosion that could result from construction by limiting construction traffic and grading and planning construction to minimize new ground disturbance.

Impact HYD-3: Potential to substantially increase the rate or amount of surface runoff.

As discussed, SWPPP BMPs would be installed to control runoff during construction activities. These BMPs may include temporary structures such as check dams, silt fences, fiber rolls, gravel bag berms, sandbag barriers, covers of plastic sheeting on stockpiled materials, and stabilized entrances/exits to facility footprints and low and high work disturbance areas. In conjunction with other operation and maintenance Covered Activities, these BMPs would be installed along the perimeter of all facility footprints and work areas (including both low- and high-disturbance work areas) to prevent runoff from leaving construction sites without infiltrating into the soil. BMPs would remain in place until construction is complete and the soil surface has been effectively stabilized, or until other means of controlling runoff and excessive erosion have been implemented (e.g., mulch installed during revegetation).

In addition, ECs GEO-1 and GEO-2 are required to reduce this potentially adverse effect.

The proposed alignment would result in negligible changes to pervious and impervious surface area in the HCP Permit Area and therefore would not result in significant changes to surface runoff. Once construction of the proposed transmission line is complete, no significant adverse effect would occur with respect to surface runoff.

Impact HYD-4: Potential to substantially degrade water quality.

As discussed previously, a number of federal and state water quality provisions would apply to the Covered Activities in order to avoid water quality impacts. SCE would be required to obtain approval to carry-out construction activities under the General Permit or a waiver thereof (all construction activities proposed are those typically covered or waived under the General Permit) from the SWRCB. The preparation of an SWPPP would be required in accordance with the General Permit. The SWPPP would include, but not be limited to, relevant measures, conditions, and monitoring obligations that would reduce the impacts of construction activities on water quality. Additionally, actions that involve or are expected to involve dredge or fill material, and/or discharge of waste, are subject to water quality certification under Section 401 of the CWA and/or waste discharge requirements under the Porter-Cologne Act. If a federal permit is required as part of the Covered Activities, then water quality certification for the actions covered within the federal permit would be obtained from the CVRWQCB. Otherwise, Chapter 4, Article 4 of the Porter-Cologne Act (California Water Code, Section 13260–13274), states that persons discharging or proposing to discharge waste that could affect the quality of waters of the state (other than into a community sewer system) shall file a Report of Waste Discharge with the applicable RWQCB and be subject to WDR. WDR typically address potential indirect discharges of waste to surface waters, such as waste discharges to land (e.g., spoils disposal and storage) or erosion from soil disturbance.

The existing measures required of SCE discussed above (e.g., the General Permit, water quality certification, and/or WDR) are sufficient to reduce potential construction-related water quality impacts to a less-than-significant level that is considered not adverse. However, with respect to potential impacts associated with the proposed new access roads, ECs GEO-1 and GEO-2 are required to specifically address the potential water quality impacts associated with proposed new roads. With implementation of EC GEO-1 and GEO-2, no significant adverse impact would result.

Impact HYD-5: Substantially adversely affect federally and state regulated jurisdictional features

Implementation of the HCP would result in permanent and temporary direct effects to jurisdictional features within the HCP Permit Area. Permanent and temporary direct effects to jurisdictional features were assessed by using GIS to compare the permanent development footprints and temporary construction footprints of the HCP Covered Activities over existing delineated features. Table 6-3 details direct effects to CDFW jurisdictional features and Table 6-4 details direct effects to ACOE/RWQCB jurisdictional features. Impacts to jurisdictional features are depicted on Figures 6-4a–6-4k.

Table 6-3
Impacts to CDFW Jurisdictional Features within the HCP Permit Area

Jurisdictional Feature	Riparian Habitat		Unvegetated Streambed		Total
	Permanent	*Temporary*	*Permanent*	*Temporary*	
Ditch					
Ditch	—	—	—	0.16	0.16
Drainage Channel	—	—	0.13	0.07	0.20
Ditch Total	—	—	*0.13*	*0.23*	*0.36*
Vernal Pool					
Ephemeral Pool	<0.01	—	—	—	<0.01
Swale	0.14	0.14	—	—	0.28
Vernal Pool Total	*0.14*	*0.14*	—	—	*0.28*
Grand Total	0.14	0.14	0.13	0.23	0.64

Table 6-4
Impacts to RWQCB and ACOE Jurisdictional Features within the HCP Permit Area

Jurisdictional Feature	RWQCB Only				RWQCB/ACOE				Total
	Non- wetland		*Wetland*		*Non- wetland*		*Wetland*		
	Perm	*Temp*	*Perm*	*Temp*	*Perm*	*Temp*	*Perm*	*Temp*	
Ditch									
Ditch	—	—	—	—	—	0.09	—	—	0.09
Drainage Channel	0.08	0.02	—	—	0.06	0.03	—	—	0.20
Ditch Total	*0.08*	*0.02*	—	—	*0.06*	*0.12*	—	—	*0.29*
Vernal Pool									
Ephemeral Pool	—	—	—	—	—	—	<0.01	—	<0.01
Swale	—	—	0.14	0.14	—	—	—	—	0.28
Vernal Pool Total	—	—	*0.14*	*0.14*	—	—	*<0.01*	—	*0.28*
Grand Total	0.08	0.02	0.14	0.14	0.06	0.12	<0.01	—	0.57

Implementation of the HCP may also have indirect effects on jurisdictional features within the HCP Permit Area. Indirect effects may result from the proximity of development to biological resources during and following construction and may include the generation of fugitive dust, erosion and sedimentation, the introduction of pollutants and chemical spills, and changes in hydrology and hydraulics. Excessive dust can decrease the vigor and productivity of vegetation through effects on light, penetration, photosynthesis, respiration, transpiration, increased penetration of phytotoxic gaseous pollutants, and increased incidence of pests and diseases. Removing or altering portions of jurisdictional features can affect both upstream and downstream processes. Impacts and ECs related to erosion and sedimentation are described under Impacts HYD-2 and HYD-3 and impacts and ECs related to water quality are described under Impact HYD-4.

The conservation strategy outlined in the HCP would reduce effects to jurisdictional features (Chapter 2). The avoidance and minimization measures of the Conservation Strategy were developed for specific activities as well as more broadly for species and habitat. The construction and operations and maintenance measures are directly targeted at reducing effects to jurisdictional waters. Measures designed specifically for species will indirectly provide mitigation for jurisdictional waters.

Vernal pools/swales are permanently altered by disturbance of the underlying impermeable soil layer. Therefore, the habitat functions of vernal pools in graded work areas, even if restored to natural vegetation, would be considered permanently lost, resulting in a significant adverse impact to 0.28 acre of vernal pool/swale features. According to the HCP, mitigation for unavoidable permanent impacts to vernal pool and swale habitat will occur through compensatory mitigation to be determined (VP-3). Permanent and temporary direct impacts to jurisdictional ditches and drainage channels would require mitigation and permitting in accordance with Sections 404 and 401 of the Clean Water Act and the CDFW SAA. Mitigation for permanent impacts will be determined during that permitting process. Temporary impacts will be restored on site through re-contouring of the impact area and revegetation as appropriate. Additional direct impacts will be avoided through the implementation of Mitigation Measure C-1, which provides environmental awareness training to workers and Mitigation Measure C-3, which requires designation of Environmentally Sensitive Areas (ESAs; i.e., areas that must be avoided during construction). Mitigation Measures VP-1 and VP-2 will establish buffers of vernal pool/swale habitat and require monitoring in those areas during construction.

Avoidance and Minimization Measures C-8 and C-9 will reduce indirect impacts related to water quality and pollutants and erosion. These measures are fully discussed under Impacts HYD-2 and HYD-4 and include discussion of SWPPP BMPs to ensure that stormwater runoff associated with construction is controlled.

As a part of the project, road drainage systems and stormwater diversion structures will be installed into new access roads during and after grading. Drainage systems will be installed where roads cross intermittent drainages and also will be used to divert and convey runoff. Although not designated as a minimization or mitigation measure, installation of these facilities will allow for continued flow for ditch and drainage features impacted by road development.

Impact HYD-6: Potential to create substantial flood hazards.

As discussed previously, portions of the proposed alignment fall within the designated floodways of the St. John's River and Cottonwood Creek. As part of the proposed transmission line, new structures (i.e., poles) would be placed within a 100-year floodplain as identified by FEMA (2008). The new structures placed within the 100-year floodplains would not be large enough to

impede or redirect flood flows. In the vicinity of the proposed alignment (i.e., the flat valley area), overbank flows spread-out rapidly and cover a relatively large area, and the effect that the new structures would have on the hydraulics of such flows is essentially negligible. This would result in no significant adverse impact.

Determination

The Service evaluated the past and present effects on hydrology and water quality as summarized in Section 6.3. The Service concludes that under the proposed HCP/permit action, no significant adverse effects would occur related to hydrology or water quality upon implementation of ECs GEO-1 and GEO-2. The Proposed HCP/permit action would not result in significant adverse effects from groundwater supplies, erosion, sedimentation, or runoff, drainage patterns, water quality, or flooding risk. Therefore, this level of effect does not meet thresholds of significance (Impacts HYD-1 through HYD-6) and is determined to be not significant or adverse by the Service.

Cumulative Effects of the Proposed Action

Impact HYD-1: Potential to substantially deplete groundwater supplies.

The groundwater basins underlying the HCP Permit Area are relatively large, predominantly unconfined, and heavily impacted by existing agricultural demands (e.g., the annual overdraft within the Tulare Lake groundwater basin (County of Tulare 2010)). As discussed above, the proposed transmission line excavations could encounter groundwater, in which case dewatering would be necessary. Other past, present, and future projects may also require dewatering activities, which could deplete groundwater supplies. Other new development in the area would also be required to evaluate potential groundwater impacts and comply with related laws and regulations by implementing state and local requirements through CEQA review where applicable. Furthermore, the applicant would be required to prepare a dewatering plan, which would ensure that the proposed transmission line would not adversely affect groundwater supplies and therefore, the incremental effect of the proposed transmission line, in combination with other past, present, and reasonably foreseeable projects, would not result in a significant adverse impact.

Impact HYD-2: Potential to substantially increase erosion or siltation associated with alteration of existing drainage patterns.

The proposed HCP/permit action, along with the past, present, and reasonably foreseeable future projects in the area identified in Section 3.2, Cumulative Projects, would be required to comply with applicable federal, state, and local water quality regulations. The proposed transmission line, along with other projects involving similar general construction activities, would be required to implement SWPPP BMPs to ensure that stormwater runoff associated with

construction is controlled. In addition to BMPs, the proposed transmission line would also implement ECs GEO-1 through GEO-5 in Chapter 4, which would reduce the amount of erosion that could result from construction by limiting construction traffic and grading and planning construction to minimize new ground disturbance. Furthermore, because the proposed transmission line has the potential to result in a significant adverse effect associated with the installation of new roads along the alignment, ECs GEO-1 and GEO-2 are required to reduce this potentially adverse effect. Therefore, the proposed transmission line, in combination with other past, present, and reasonably foreseeable projects, would result in no adverse effect related to erosion or siltation.

Impact HYD-3: Potential to substantially increase the rate or amount of surface runoff.

As discussed previously, SWPPP BMPs would be incorporated as part of the proposed transmission line and other related projects to control runoff during construction activities. These BMPs may include temporary structures such as check dams, silt fences, fiber rolls, gravel bag berms, sandbag barriers, covers of plastic sheeting on stockpiled materials, and stabilized entrances/exits to facility footprints and low and high work disturbance areas. Furthermore, the proposed alignment would result in negligible changes to pervious and impervious surface area in the HCP Permit Area and therefore would not result in significant changes to surface runoff. Other new development in the area would also be required to evaluate and mitigate potential impacts related to surface runoff through CEQA review where applicable. Therefore, the proposed transmission line, in combination with other past, present, and reasonably foreseeable projects, would result in no adverse effect related to surface runoff.

Impact HYD-4: Potential to substantially degrade water quality.

The proposed HCP/permit action, along with the past, present, and reasonably foreseeable future projects in the area identified in Section 3.2, Cumulative Projects, would be required to comply with applicable federal, state, and local water quality regulations. The proposed transmission line, along with other projects involving similar general construction activities, would be required to obtain coverage under the General Permit, Section 401 (of the CWA) water quality certification, and/or WDR. Stormwater management measures would be required to be identified and implemented that would effectively control erosion and sedimentation and other construction-related pollutants during construction. Other management measures, such as construction of infiltration/detention basins, would be required to be identified and implemented that would effectively treat pollutants that would be expected for the post-construction land use for certain projects. Construction and operational-related stormwater runoff from this project would be controlled by the requirements of an NPDES permit (i.e.., General Permit), WDR measures, and mitigation measures. Other new development in the area would also be required to control construction and operational stormwater by implementing state and local requirements

regarding hydrology and water quality, as well as by requirements introduced through CEQA review where applicable. Furthermore, the ECs described above would ensure that the alignment's contribution to hydrologic resources and water quality impacts would be less than cumulatively considerable. Therefore, the proposed transmission line, in combination with other past, present, and reasonably foreseeable projects, would result in no adverse effect.

Impact HYD-5: Substantially adversely affect federally and state regulated jurisdictional features.

Construction and operation of the proposed transmission line could result in effects to features under the jurisdiction of the ACOE, RWQCB, and CDFW, including both temporary disturbance and permanent removal of these resources. It is anticipated that ongoing and future development projects, as described in Chapter 3.2, would contribute to the incremental loss of undeveloped natural lands. The Covered Activities of the HCP would revegetate temporarily disturbed areas and would mitigate for permanently impacted jurisdictional resources. Additionally, other new development in the area would also be required to evaluate potential impacts related to features under the jurisdiction of the ACOE, RWQCB, and CDFW. Therefore, the proposed transmission line would not incrementally contribute to a cumulative adverse impact to jurisdictional resources. This would result in no adverse effect**.**

Impact HYD-6: Potential to create substantial flood hazards.

As discussed previously, portions of the proposed alignment would be placed within a 100-year floodplain as identified by FEMA (2008). However, in the vicinity of the proposed alignment (i.e., the flat valley area), overbank flows spread rapidly and cover a relatively large area, and the effect that the new structures would have on the hydraulics of such flows is essentially negligible. Other new development in the area would also be required to evaluate potential impacts related to flood hazards. Therefore, the proposed transmission line would not incrementally contribute to a cumulative adverse impact. This would result in no adverse effect.

Determination

The Service evaluated the past and present effects on hydrology as summarized in Sections 6.1–6.3. Then the Service evaluated effects of the reasonably foreseeable other projects, as summarized in Section 6.3 and Chapter 3. Finally, the Service added the incremental effects of the proposed action, as described in Section 6.3 to those other effects. The Service concludes that the small incremental effects of the proposed permit action and HCP, when added to the effects of the past, present, and reasonably foreseeable future projects on hydrology in the resource study area do not meet the identified thresholds of significance (HYD-1 through HYD-6) and are not considered significant or adverse.

6.4 References Cited

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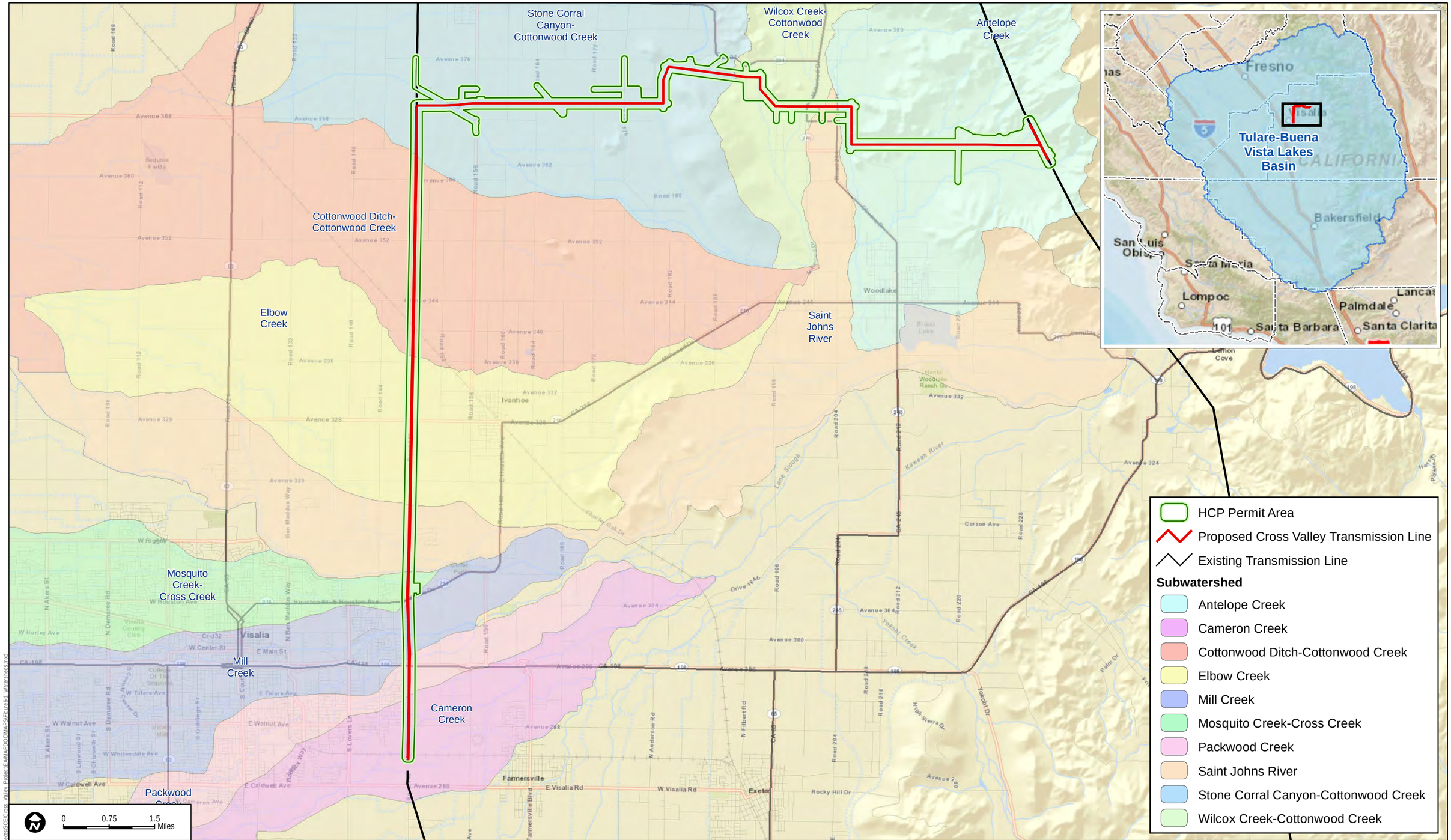

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SOURCE: SCE 2013, USGS NHD 2012, ESRI Online

EA

FIGURE 6-1

Local Watersheds

CROSS VALLEY TRANSMISSION LINE HABITAT CONSERVATION PLAN ENVIRONMENTAL ASSESSMENT

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HCP Permit Area
Proposed Cross Valley Transmission Line
Existing Transmission Line

Jurisdiction

CDFG
RWQCB ONLY
USACE/RWQCB

0 500 1,000 Feet

7
6
5
3
2

Yettem
245
Woodlake
63
Ivanhoe
Visalia
Farmersville
EXETER

SOURCE: SCE 2013, NAIP 2010, ESRI Online

FIGURE 6-2a

Jurisdictional Waters

EA

CROSS VALLEY TRANSMISSION LINE HABITAT CONSERVATION PLAN ENVIRONMENTAL ASSESSMENT

Z:\Projects\SCE\Cross Valley Project\EA\MAPDOC\MAPS\Figure3-4-1_JurisdictionalWaters_Mapbook.mxd

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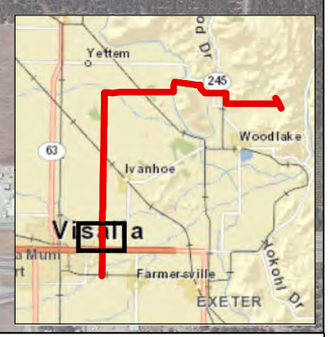
HCP Permit Area
Proposed Cross Valley Transmission Line
Existing Transmission Line

Jurisdiction

CDFG
RWQCB ONLY
USACE/RWQCB

0 500 1,000 Feet



SOURCE: SCE 2013, NAIP 2010, ESRI Online

FIGURE 6-2b

Jurisdictional Waters

EA

CROSS VALLEY TRANSMISSION LINE HABITAT CONSERVATION PLAN ENVIRONMENTAL ASSESSMENT

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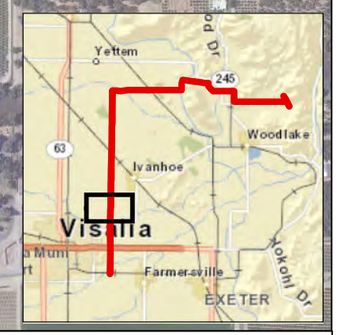
HCP Permit Area
Proposed Cross Valley Transmission Line
Existing Transmission Line

Jurisdiction

CDFG
RWQCB ONLY
USACE/RWQCB

0 500 1,000 Feet



SOURCE: SCE 2013, NAIP 2010, ESRI Online

FIGURE 6-2c

Jurisdictional Waters

EA

CROSS VALLEY TRANSMISSION LINE HABITAT CONSERVATION PLAN ENVIRONMENTAL ASSESSMENT

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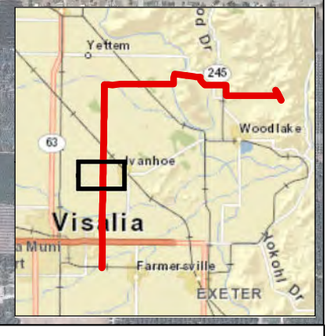
HCP Permit Area
Proposed Cross Valley Transmission Line
Existing Transmission Line

Jurisdiction

CDFG
RWQCB ONLY
USACE/RWQCB

0 500 1,000 Feet



SOURCE: SCE 2013, NAIP 2010, ESRI Online

FIGURE 6-2d

Jurisdictional Waters

EA

CROSS VALLEY TRANSMISSION LINE HABITAT CONSERVATION PLAN ENVIRONMENTAL ASSESSMENT

Z:\Projects\SCE\Cross Valley Project\EA\MAPDOC\MAPS\Figure3-4-1 JurisdictionalWaters Manhole.mxd

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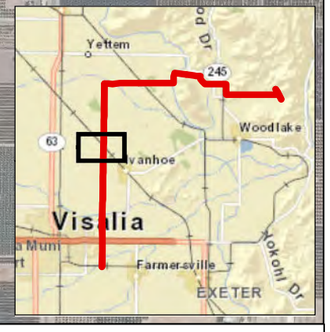
HCP Permit Area
Proposed Cross Valley Transmission Line
Existing Transmission Line

Jurisdiction

CDFG
RWQCB ONLY
USACE/RWQCB

0 500 1,000 Feet



SOURCE: SCE 2013, NAIP 2010, ESRI Online

FIGURE 6-2e

Jurisdictional Waters

EA

CROSS VALLEY TRANSMISSION LINE HABITAT CONSERVATION PLAN ENVIRONMENTAL ASSESSMENT

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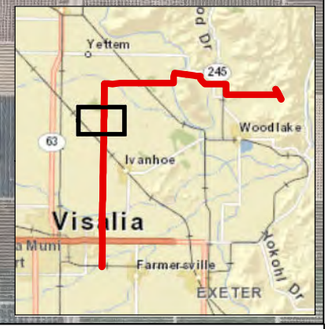
HCP Permit Area
Proposed Cross Valley Transmission Line
Existing Transmission Line

Jurisdiction

CDFG
RWQCB ONLY
USACE/RWQCB

0 500 1,000 Feet



SOURCE: SCE 2013, NAIP 2010, ESRI Online

FIGURE 6-2f

Jurisdictional Waters

EA

CROSS VALLEY TRANSMISSION LINE HABITAT CONSERVATION PLAN ENVIRONMENTAL ASSESSMENT

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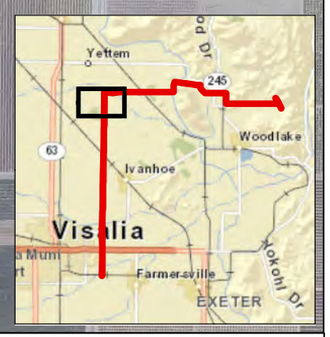
HCP Permit Area
Proposed Cross Valley Transmission Line
Existing Transmission Line

Jurisdiction

CDFG
RWQCB ONLY
USACE/RWQCB

0 500 1,000 Feet



SOURCE: SCE 2013, NAIP 2010, ESRI Online

FIGURE 6-2g

Jurisdictional Waters

EA

CROSS VALLEY TRANSMISSION LINE HABITAT CONSERVATION PLAN ENVIRONMENTAL ASSESSMENT

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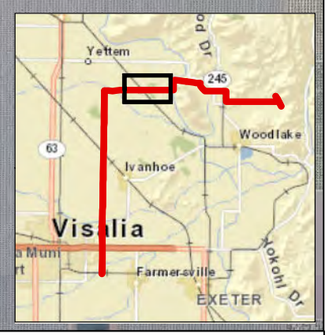
HCP Permit Area
Proposed Cross Valley Transmission Line
Existing Transmission Line

Jurisdiction

CDFG
RWQCB ONLY
USACE/RWQCB

0 500 1,000 Feet



SOURCE: SCE 2013, NAIP 2010, ESRI Online

FIGURE 6-2h

Jurisdictional Waters

EA

CROSS VALLEY TRANSMISSION LINE HABITAT CONSERVATION PLAN ENVIRONMENTAL ASSESSMENT

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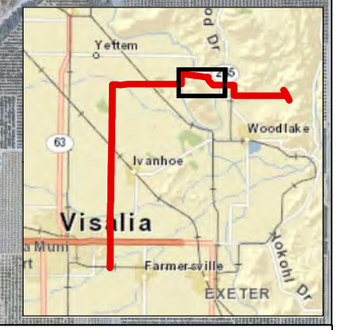
HCP Permit Area
Proposed Cross Valley Transmission Line
Existing Transmission Line

Jurisdiction

CDFG
RWQCB ONLY
USACE/RWQCB

0 500 1,000 Feet



SOURCE: SCE 2013, NAIP 2010, ESRI Online

FIGURE 6-2i

Jurisdictional Waters

EA

CROSS VALLEY TRANSMISSION LINE HABITAT CONSERVATION PLAN ENVIRONMENTAL ASSESSMENT

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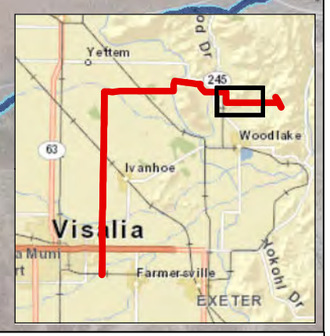
HCP Permit Area
Proposed Cross Valley Transmission Line
Existing Transmission Line

Jurisdiction

CDFG
RWQCB ONLY
USACE/RWQCB

0 500 1,000 Feet



SOURCE: SCE 2013, NAIP 2010, ESRI Online

FIGURE 6-2j

Jurisdictional Waters

EA

CROSS VALLEY TRANSMISSION LINE HABITAT CONSERVATION PLAN ENVIRONMENTAL ASSESSMENT

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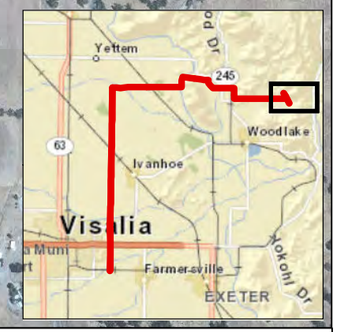
HCP Permit Area
Proposed Cross Valley Transmission Line
Existing Transmission Line

Jurisdiction

CDFG
RWQCB ONLY
USACE/RWQCB

0 500 1,000 Feet



SOURCE: SCE 2013, NAIP 2010, ESRI Online

FIGURE 6-2k

Jurisdictional Waters

EA

CROSS VALLEY TRANSMISSION LINE HABITAT CONSERVATION PLAN ENVIRONMENTAL ASSESSMENT

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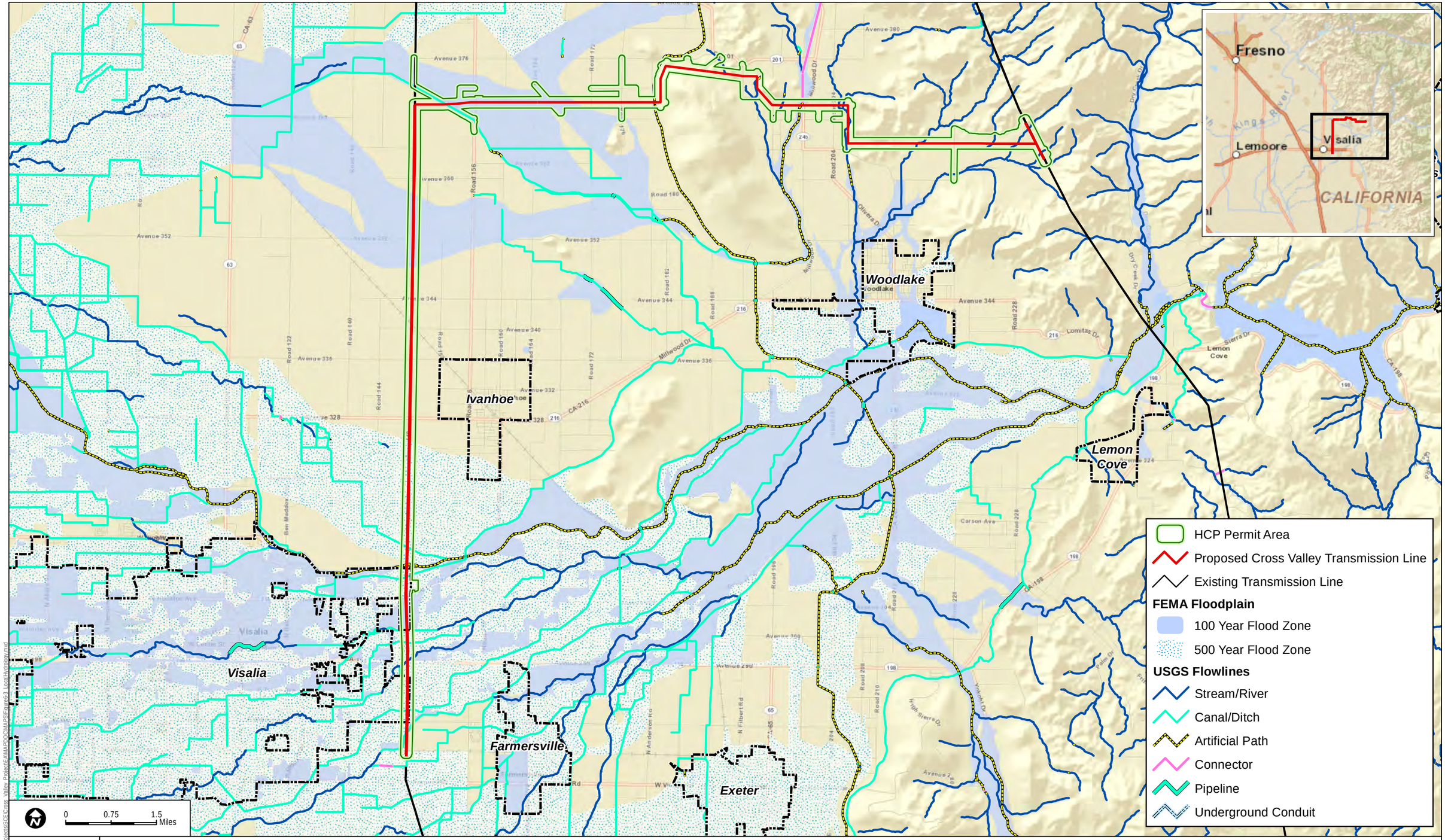

SOURCE: SCE 2013, USGS NHD 2012, FEMA 2008, ESRI Online

FIGURE 6-3

Floodplains

EA

CROSS VALLEY TRANSMISSION LINE HABITAT CONSERVATION PLAN ENVIRONMENTAL ASSESSMENT

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HCP Permit Area
Proposed Cross Valley Transmission Line
Existing Transmission Line

Jurisdiction

CDFG
RWQCB ONLY
USACE/RWQCB

Groupings

Group 1 - Graded-Maintained
Group 2 - Graded-Restored
Group 3 - Not Graded-Restored

0 500 1,000 Feet

Yettem
Woodlake
Ivanhoe
Visalia
Farmersville
EXETER
245
63

SOURCE: SCE 2012, ESRI Data 2010, NAIP 2010

FIGURE 6-4a

Impacts to Jurisdictional Waters

EA

CROSS VALLEY TRANSMISSION LINE HABITAT CONSERVATION PLAN ENVIRONMENTAL ASSESSMENT

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HCP Permit Area
Proposed Cross Valley Transmission Line
Existing Transmission Line

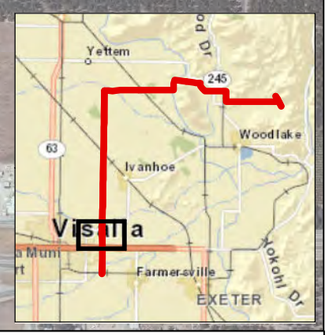
Jurisdiction

CDFG
RWQCB ONLY
USACE/RWQCB

Groupings

Group 1 - Graded-Maintained
Group 2 - Graded-Restored
Group 3 - Not Graded-Restored

0 500 1,000 Feet



SOURCE: SCE 2012, ESRI Data 2010, NAIP 2010

FIGURE 6-4b

Impacts to Jurisdictional Waters

EA

CROSS VALLEY TRANSMISSION LINE HABITAT CONSERVATION PLAN ENVIRONMENTAL ASSESSMENT

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HCP Permit Area
Proposed Cross Valley Transmission Line
Existing Transmission Line

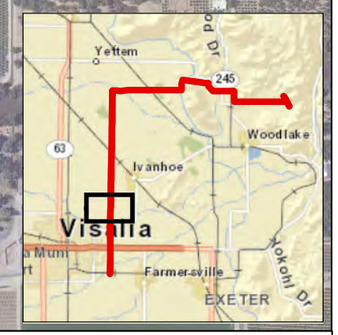
Jurisdiction

CDFG
RWQCB ONLY
USACE/RWQCB

Groupings

Group 1 - Graded-Maintained
Group 2 - Graded-Restored
Group 3 - Not Graded-Restored

0 500 1,000 Feet



SOURCE: SCE 2012, ESRI Data 2010, NAIP 2010

FIGURE 6-4c

Impacts to Jurisdictional Waters

EA

CROSS VALLEY TRANSMISSION LINE HABITAT CONSERVATION PLAN ENVIRONMENTAL ASSESSMENT

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HCP Permit Area
Proposed Cross Valley Transmission Line
Existing Transmission Line

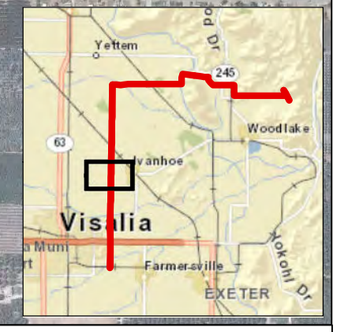
Jurisdiction

CDFG
RWQCB ONLY
USACE/RWQCB

0 500 1,000 Feet

Groupings

Group 1 - Graded-Maintained
Group 2 - Graded-Restored
Group 3 - Not Graded-Restored



SOURCE: SCE 2012, ESRI Data 2010, NAIP 2010

FIGURE 6-4d

Impacts to Jurisdictional Waters

EA

CROSS VALLEY TRANSMISSION LINE HABITAT CONSERVATION PLAN ENVIRONMENTAL ASSESSMENT

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HCP Permit Area
Proposed Cross Valley Transmission Line
Existing Transmission Line

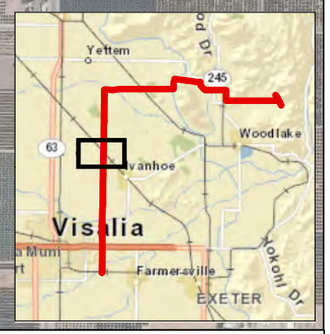
Jurisdiction

CDFG
RWQCB ONLY
USACE/RWQCB

0 500 1,000 Feet

Groupings

Group 1 - Graded-Maintained
Group 2 - Graded-Restored
Group 3 - Not Graded-Restored



SOURCE: SCE 2012, ESRI Data 2010, NAIP 2010

FIGURE 6-4e

Impacts to Jurisdictional Waters

EA

CROSS VALLEY TRANSMISSION LINE HABITAT CONSERVATION PLAN ENVIRONMENTAL ASSESSMENT

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HCP Permit Area
Proposed Cross Valley Transmission Line
Existing Transmission Line

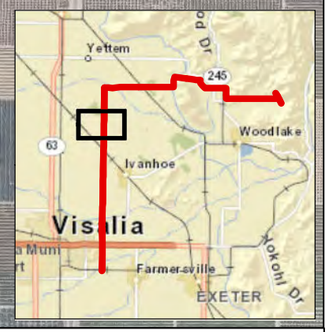
Jurisdiction

CDFG
RWQCB ONLY
USACE/RWQCB

0 500 1,000 Feet

Groupings

Group 1 - Graded-Maintained
Group 2 - Graded-Restored
Group 3 - Not Graded-Restored



SOURCE: SCE 2012, ESRI Data 2010, NAIP 2010

FIGURE 6-4f

Impacts to Jurisdictional Waters

EA

CROSS VALLEY TRANSMISSION LINE HABITAT CONSERVATION PLAN ENVIRONMENTAL ASSESSMENT

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HCP Permit Area
Proposed Cross Valley Transmission Line
Existing Transmission Line

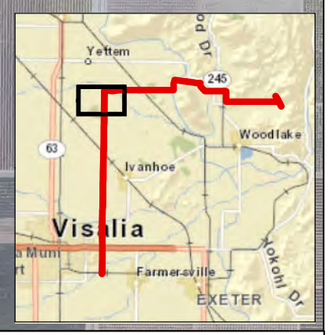
Jurisdiction

CDFG
RWQCB ONLY
USACE/RWQCB

0 500 1,000 Feet

Groupings

Group 1 - Graded-Maintained
Group 2 - Graded-Restored
Group 3 - Not Graded-Restored



SOURCE: SCE 2012, ESRI Data 2010, NAIP 2010

FIGURE 6-4g

Impacts to Jurisdictional Waters

EA

CROSS VALLEY TRANSMISSION LINE HABITAT CONSERVATION PLAN ENVIRONMENTAL ASSESSMENT

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HCP Permit Area
Proposed Cross Valley Transmission Line
Existing Transmission Line

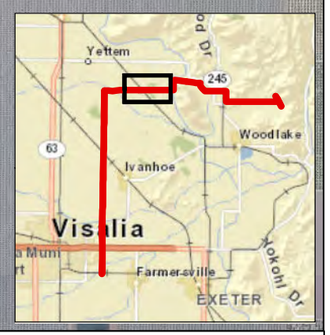
Jurisdiction

CDFG
RWQCB ONLY
USACE/RWQCB

0 500 1,000 Feet

Groupings

Group 1 - Graded-Maintained
Group 2 - Graded-Restored
Group 3 - Not Graded-Restored



SOURCE: SCE 2012, ESRI Data 2010, NAIP 2010

FIGURE 6-4h

Impacts to Jurisdictional Waters

EA

CROSS VALLEY TRANSMISSION LINE HABITAT CONSERVATION PLAN ENVIRONMENTAL ASSESSMENT

Z:\Projects\SCE\Cross Valley Project\EA\MAPDOC\MAPS\Figure3-4-1 JurisdictionalWaters Mapbook.mxd

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HCP Permit Area
Proposed Cross Valley Transmission Line
Existing Transmission Line

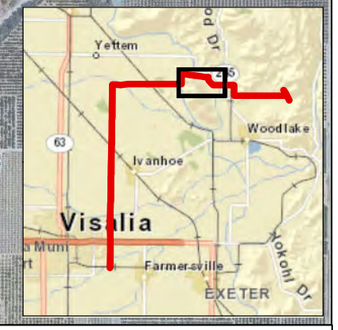
Jurisdiction

CDFG
RWQCB ONLY
USACE/RWQCB

Groupings

Group 1 - Graded-Maintained
Group 2 - Graded-Restored
Group 3 - Not Graded-Restored

0 500 1,000 Feet



Z:\Projects\SCE\Cross Valley Project\EA\MAPDOC\MAPS\Figure3-4-1 JurisdictionalWaters Mapbook.mxd

SOURCE: SCE 2012, ESRI Data 2010, NAIP 2010

FIGURE 6-4i

Impacts to Jurisdictional Waters

EA

CROSS VALLEY TRANSMISSION LINE HABITAT CONSERVATION PLAN ENVIRONMENTAL ASSESSMENT

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HCP Permit Area
Proposed Cross Valley Transmission Line
Existing Transmission Line

Jurisdiction

CDFG
RWQCB ONLY
USACE/RWQCB

Groupings

Group 1 - Graded-Maintained
Group 2 - Graded-Restored
Group 3 - Not Graded-Restored

0 500 1,000 Feet

SOURCE: SCE 2012, ESRI Data 2010, NAIP 2010

FIGURE 6-4j

Impacts to Jurisdictional Waters

EA

CROSS VALLEY TRANSMISSION LINE HABITAT CONSERVATION PLAN ENVIRONMENTAL ASSESSMENT

Z:\Projects\SCE\Cross Valley Project\EA\MAPDOC\MAPS\Figure6-4-1_JurisdictionalWaters_Mapbook.mxd

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HCP Permit Area
Proposed Cross Valley Transmission Line
Existing Transmission Line

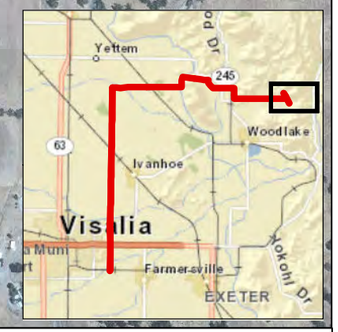
Jurisdiction

CDFG
RWQCB ONLY
USACE/RWQCB

Groupings

Group 1 - Graded-Maintained
Group 2 - Graded-Restored
Group 3 - Not Graded-Restored

0 500 1,000 Feet



SOURCE: SCE 2012, ESRI Data 2010, NAIP 2010

FIGURE 6-4k

Impacts to Jurisdictional Waters

EA

CROSS VALLEY TRANSMISSION LINE HABITAT CONSERVATION PLAN ENVIRONMENTAL ASSESSMENT

Z:\Projects\SCE\Cross Valley Project\EA\MAPDOC\MAPS\Figure3.4-1_JurisdictionalWaters_Mapbook.mxd

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