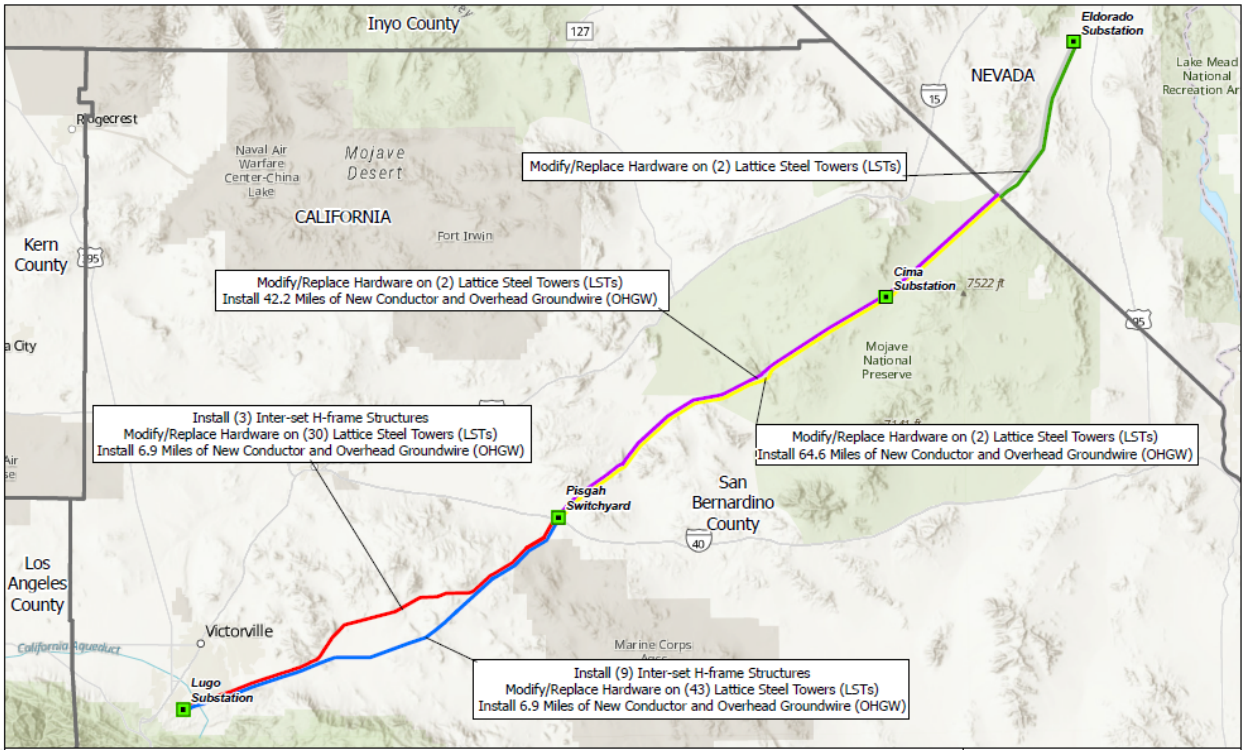

Proponent's Environmental Assessment for Southern California Edison Company's Eldorado-Pisgah-Lugo 220 kV Project

April 2023

The Eldorado-Pisgah-Lugo 220 kV Project located in San Bernardino County, California and Clark County, Nevada, involves the installation of new inter-set structures, modification of hardware on existing structures, installation of new conductor and overhead groundwire, and modification of equipment at existing substations and a switchyard.

Application A.23-XX-XX to the California Public Utilities Commission

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Required PEA Appendices and Supporting Materials*

Appendix A	Detailed Maps and Design Drawings
Appendix B	Emissions Calculations
Appendix C	Biological Resources Technical Reports
Appendix D	Cultural Resources Studies
Appendix E	Detailed Tribal Consultation Report
Appendix F	Agency Consultation and Public Outreach Report and Records of Correspondence
Appendix G	Fire Prevention and Emergency Response Plan
Appendix H	Ambient Noise Survey
Appendix I	Visual Resources Technical Report
Appendix J	Paleontological Resources Technical Report
Appendix K	Vehicle Miles Traveled Calculations
Appendix L	Weather Data
Appendix M	Hazardous Materials and Waste Management Plan
Appendix N	Soil Management Plan
Appendix O	Helicopter Use and Safety Plan
Appendix P	Fugitive Dust Plan
Appendix Q	Wildfire Mitigation Plan
Appendix R	Burrowing Owl Management and Passive Relocation Plan
Appendix S	Nesting Bird Management Plan
Appendix T	Habitat Restoration Plan
Appendix U	Invasive Plant Management Plan
Appendix V	FAA Notice and Criteria Tool Results
Appendix W	300' List

* Note: SCE has provided those appendices and supporting materials identified as 'Required' in the CPUC's *Guidelines for Energy Project Applications Requiring CEQA Compliance: Pre-filing and Proponent's Environmental Assessments*; these appendices are presented in this PEA in the same order as presented in the *Guidelines*. Appendices H through V to this PEA contain supporting materials as referenced in this PEA document.

5.5 Cultural Resources

This section identifies cultural resources along the EPL Project alignment, identifies applicable significance thresholds, assesses the EPL Project's impacts to these resources and their significance, and recommends measures to avoid or substantially reduce any effects found to be potentially significant.

Cultural resources are defined as any object or specific location of past human activity, occupation, or use that is identifiable through historical documentation, inventory, or oral evidence. Cultural resources can be separated into three categories: archaeological, building/structural, and traditional resources. Archaeological resources include prehistoric and historic remains of human activity. Prehistoric resources can be composed of lithic scatters, ceramic scatters, quarries, habitation sites, temporary camps/rock rings, ceremonial sites, and trails. Historic-era resources are typically those that are 50 years or older. Historic-era archaeological resources can consist of structural remains (e.g., concrete foundations), historical objects (e.g., bottles and cans), features (e.g., refuse deposits or scatters), and sites (e.g., resources that contain one or more of the categories). Built environment resources range from historic buildings to canals, historic roads and trails, bridges, ditches, cemeteries, and electrical infrastructure, such as transmission lines, substations, and generating facilities. A traditional cultural resource is a resource associated with the cultural practices, traditions, beliefs, lifeways, arts, crafts, or social institutions of a living community. Traditional cultural resources are rooted in a traditional community's history and are important in maintaining the continuing cultural identity of the community. See Section 5.18, Tribal Cultural Resources, for a discussion on cultural resources of potential importance to California Native American tribes.

5.5.1 Cultural Resources Environmental Setting

The EPL Project area of potential effects (APE) and area of potential impacts (API) are designated to encompass the areas where significant cultural resources could be affected or impacted by the proposed project; these two areas are identical. The EPL Project APE/API includes areas needed during construction for staging, equipment laydown, materials storage, vehicle parking, and access roads along a linear corridor in San Bernardino County, California, and Clark County, Nevada, and in the cities of Hesperia, California, and Boulder City, Nevada, and the town of Apple Valley, California. The EPL Project's western terminus is at the Lugo Substation, located in Hesperia, California. The project corridor then connects with the Pisgah Switchyard located near Newberry Springs in San Bernardino County, California, east of Barstow. The eastern terminus is at Eldorado Substation, located in Nevada approximately 16 miles southwest of Boulder City in Clark County.

The EPL Project area is found in the Mojave Desert, which is a portion of the southwestern Great Basin. The Mojave Desert is a vast province covering approximately 50,000 square kilometers (19,305 square miles) in the southeastern portion of California and southwestern Nevada. This arid desert is surrounded by the Sierra Nevada, Transverse Ranges, Peninsular Ranges, and the desolate Yuma and Colorado deserts. Elevations in the Mojave Desert range from 85 m below mean sea level to 2,400 m amsl (280 feet below mean sea level to 7,900 feet amsl).

The Mojave Desert encompasses a variety of geographical features such as mountains, rivers, lakes, and valleys. Small hills occur throughout the Mojave Desert, and prominent ranges are more common to the east near the Colorado River. Intermittent streams occur throughout the desert and carry water following major rain events. Temperatures range from 134 degrees Fahrenheit in Death Valley to below zero degree Fahrenheit on the tallest mountains.

5.5.1.1 Physical Setting

The EPL Project APE/API is approximately 176 miles (283 km) of existing transmission line starting southwest of Hesperia, California, and extending across San Bernardino County, California, and into Clark County, Nevada. Elevation of the project area ranges from approximately 1,100 to 4,825 feet (335–1,470 m) amsl. The APE/API is within a single U.S. Environmental Protection Agency (EPA)-designated Level III Ecoregion: the Mojave Basin and Range. Ecoregions denote areas of general similarity in ecosystems and in the type, quality, and quantity of environmental resources. They are designed to serve as a spatial framework for the research, assessment, management, and monitoring of ecosystems and ecosystem components (Omernik and Griffith 2014).

5.5.1.1.1 Mojave Basin and Range

The Mojave Basin and Range ecoregion extends from Death Valley National Park southward to Joshua Tree National Park, and east to the California-Nevada state line. Elevation ranges from 279 feet (85 m) below mean sea level to over 10,827 feet (3,300 m) amsl. This region can be characterized as a dry, subtropical desert climate. Accordingly, average annual precipitation is approximately 6.6 inches, ranging from only 2 inches in the lowest elevations to over 35 inches on the highest peaks. This region contains scattered north–south-trending mountain ranges, with large basins, valleys, lake beds, and alluvial fans occurring between. The APE/API passes through these large, gently sloping valley floors and alluvial fans, where deep Quaternary alluvial deposits yield Aridisols and Entisols with aridic soil moisture regimes (Bailey et al. 1994).

Vegetation is largely sparse within this ecoregion. Major vegetation communities include creosote bush (*Larrea tridentata*), white bursage (*Ambrosia dumosa*), Joshua tree (*Yucca brevifolia*), saltbush (*Atriplex* spp.), and big sagebrush (*Artemisia tridentata*) on mountain slopes. Common wildlife species include desert bighorn sheep (*Ovis canadensis nelsoni*), coyote (*Canis latrans*), kit fox (*Vulpes macrotis*), black-tailed jackrabbit (*Lepus californicus*), desert cottontail rabbit (*Sylvilagus audubonii*), desert tortoise (*Gopherus* spp.), sagebrush lizard (*Sceloporus graciosus*), desert horned-lizard (*Phrynosoma platyrhinos*), rattlesnakes, hawks, owls, and many neotropical migrants.

5.5.1.2 Prehistoric Background

The EPL Project area is located within the Mojave Desert, which falls within what many archaeologists define as part of the larger southwestern Great Basin region and the California Deserts region (e.g., Eerkens 2011; Moratto 1984; Sutton et al. 2007). As the Great Basin is an extensive geographic region encompassing portions of California, Oregon, Nevada, Idaho, Wyoming, and Utah, with multiple subregional differences and distinctions in archaeological patterning, this background will only focus on archaeological patterns observed in the southwestern portion of this vast region and the Mojave Desert subregion specifically to maintain relevance to the current project.

The prehistory of the Great Basin in general and the Mojave Desert specifically is varied and rich, encompassing a period of more than 12,000 years. Numerous researchers (e.g., Basgall and Giambastiani 1995; Basgall and McGuire 1988; Bettinger 1976, 1991; Bettinger and Taylor 1974; Delacorte 1990; Giambastiani 2005; Rogers 1939, 1945a; Sutton et al. 2007; Wallace 1962; Warren 1984a; Warren and Crabtree 1986) have developed chronological sequences for the area throughout the past approximately 100 years of archaeological research. However, as the archaeological record is fragmentary, nuanced, and often lacking in absolute dates, particularly for the earlier periods of prehistory, further study is always needed to account for the varied and somewhat complicated archaeological record of the region (Halford 2008). No single chronology is applicable to the whole of the California Deserts or Great Basin regions

(Moratto 2004); however, the following sequence correlates geologic periods with our current understanding of primary cultural chronologies for the Mojave Desert and southwestern Great Basin in general (e.g., Bettinger and Taylor 1974; Giambastiani 2004; Hildebrandt et al. 2016; Moratto 2004; Sutton et al. 2007; Warren and Crabtree 1986). Changes in cultural complexes and distinctions within this region are discussed by subregion when appropriate, and subregional distinctions not relevant to the current project area have been excluded. The regional prehistoric cultural chronology using a simplified nomenclature for the Mojave Desert is summarized below in Table 5.5-1 and discussed in more detail in the sections below, following a brief discussion of primary environmental distinctions within the region. Clearly, these environments were not static across space and through time and experienced shifting distributions of plants and animals following climatic oscillations throughout the Holocene (see Byers and Broughton 2004).

The Mojave Desert falls within the Lower Sonoran Zone, which consists of the California deserts situated at low elevations with minimal rainfall, high temperatures, and low humidity (Moratto 2004). Characteristic vegetation types are creosote bush and creosote bush-bursage, with localized representations of greasewood, paloverde, and other saltbush and cactus shrub types. Animals found in this desert environment include jackrabbits and numerous species of rodents, birds, and reptiles, along with bobcats and coyotes. The southwestern Great Basin contains two primary vegetation types, namely sagebrush steppe and piñon-juniper/juniper-steppe woodland (Moratto 2004). Lower elevations contain more sagebrush and bitterbrush, while higher elevations host scattered woodlands of piñon pine and juniper.

Table 5.5-1. Prehistoric Cultural Chronology for the Project Area

Geologic Period	**Environmental Overview – Broad Trends**	**Mojave Desert Cultural Chronology**	**Diagnostic Artifacts for the Mojave Desert**
Terminal Pleistocene 14,000–11,500 cal B.P. (pre-12,000–9500 B.C.)	Pleistocene/Holocene transition Cooler and wetter climate Major lake systems and lacustrine zones were present Piñon-juniper woodlands extended into the valleys	Paleoindian Complex pre-14,000–ca. 11,000 cal B.P. (12,000–9000 B.C.)	Western Stemmed and Great Basin Stemmed points Basally thinned lanceolate points Crescent Cluster (ca. 14,000–10,500 cal B.P.)
		Clovis Complex ca. 13,500–12,900 cal B.P. (11,500–10,900 B.C.)	Clovis fluted projectile points, crescents continue—see specific date range to left
		Paleoindian Complex (and particularly stemmed point variants) continues after Clovis	See stemmed variants above
Early Holocene 11,500–8300 cal B.P. (9500–6300 B.C.)	Gradual transition Drier conditions by beginning of this period Retreat of woodlands and	Lake Mojave Complex ca. 11,000–8000 cal B.P. (9000– 6000 B.C.)	Lake Mohave points Silver Lake points

Table 5.5-1. Prehistoric Cultural Chronology for the Project Area

Geologic Period	Environmental Overview – Broad Trends	Mojave Desert Cultural Chronology	Diagnostic Artifacts for the Mojave Desert
	expansion of desert scrub	Pinto Complex ca. 10,000–4000 cal B.P. (7000–2000 B.C.)	Pinto series points (ca. 10,000–5000 cal B.P.) Borax Lake Wide Stem (ca. 8000–4000 cal B.P.) Possible earlier manifestation of Humboldt basal-notched points, as early as 8000 cal B.P. Possible earlier manifestation of Elko points Gatecliff generally 5000–3000 cal B.P., spanning the transition from this to the next period
Middle Holocene 8300–3800 cal B.P. (6300–1800 B.C.)	Warmer and drier overall but with climatic oscillations from wetter to drier through time during this period	See above	See above
Late Holocene 3800 cal B.P.–contact (1800 B.C.–contact)	Generally cooler and wetter with a series of wet and dry episodes during the latter part of this period	Gypsum Complex ca. 4000–1000 cal B.P. (2000 B.C.–A.D. 200)	Gypsum series points (well-shouldered contracting stemmed) Elko series points (corner-notched) Humboldt series points (concave base)
	Owens Lake highstand ca. 3500 cal B.P. Owens Lake droughts ca. 2500 and 1,800 cal B.P. (500 B.C. and A.D. 200)	Rose Spring Complex ca. 1800–900 cal B.P. (~A.D. 200–1100)	Rose Spring series points Eastgate series points Bow and arrow
	Medieval Climatic Anomaly 1200–650 cal B.P. (A.D. 800–1350) Little Ice Age ca. 700–150 cal B.P. (A.D. 1300–1860)	Late Prehistoric Complex 900 cal B.P.–contact (1100 B.C. –contact)	Desert series points Cottonwood points Ceramics Inception of agriculture (floodplain farming)

Notes: Date ranges are approximations, generally rounded to the nearest 100 calibrated radiocarbon years before present (cal B.P.), particularly for the earlier periods, with B.C./A.D. dates in parentheses. Table is adapted from Bettinger and Taylor (1974), Eerkens and Spurling (2008), Hildebrandt et al. (2016), Moratto (2004), Sutton et al. (2007), and Sutton (2017).

5.5.1.2.1 Terminal Pleistocene: Paleoindian, Clovis, early Lake Mojave complexes

Most of the earliest evidence for the presence of humans in these regions has been recovered from the Mojave Desert, in the vicinity of the EPL Project, and in western Nevada (Giambastiani 2004:32), with radiocarbon dates from Fort Irwin and China Lake confirming human presence in the general region by ca.11,600 years ago (Basgall and Hall 1994). While there have been several controversial claims of much older Pleistocene-age finds in the region (such as the Early Man Site of Calico Hills [Leakey 1972; Leakey et al. 1968]), most archaeologists remain unconvinced of a pre-terminal date for the arrival of humans in the Americas (Owen et al. 2011). However, growing evidence for occupations variously termed Paleoindian, Paleoamerican, or Paleocoastal that predate Clovis sites elsewhere in the Americas (e.g., Dillehay and Collins 1997; Dillehay et al. 2008; Gilbert et al. 2008; Haynes 2015; Jenkins et al.

2014; Madsen 2004; Madsen et al. 2015; see also Sutton 2019) alludes to the possibility that evidence for earlier human occupations may yet be uncovered.

Several rockshelter and cave sites in the northwestern Great Basin (southeast Oregon), including the well-known Paisley Caves site, contain ample evidence of human occupation extending back at least 14,000 years, including directly dated human coprolites and an abundance of animal bones, charcoal features, and lithic artifacts of the Western Stemmed Point Tradition (Aikens et al. 2011; Jenkins et al. 2012; Jenkins et al. 2016; see also Smith and Barker 2017). Radiocarbon analysis of an *Olivella* shell bead at Fort Irwin appears to be the oldest direct evidence for human presence in the Mojave Desert (Basgall and Hall 1994) and likely represents a Paleoindian occupation of the region (Sutton et al. 2007). However, due to the paucity of datable remains throughout much of the region, researchers are left to speculate on the age of early desert people based on lithic artifact types. For example, some researchers propose that the Lake Mojave Complex, defined by stemmed points, began as early as 12,000 years ago (Grayson 1993; Wallace 1962), while others contend that the fluted-point Clovis tradition represents the earliest known occupation of the Mojave Desert (Sutton et al. 2007), in some cases advocating an inclusion of Clovis technology in the Lake Mojave cultural complex. It is becoming increasingly clear, however, that the Western Stemmed Point Tradition was more extensive than Clovis in this region specifically (Sutton 2019) and that it likely both predates Clovis and continues after the limited temporal span of Clovis (Beck et al. 2019).

Hallmark artifacts of the Clovis tradition, which is better defined elsewhere in the country but does occur within the Mojave Desert, include large, lanceolate bifaces with distinctive fluting, used to thin and flatten the base for hafting, as well as large side scrapers, blades struck from prepared cores, and a mixture of expedient flaked stone and bone tools (Justice 2002; see also Haynes and Hutson 2014; Miller et al. 2014). The Lake Mojave lithic complex is composed of Lake Mojave, Silver Lake, and rare fluted projectile points (Clovis), with fluted points being recovered most frequently in the northern and western Mojave subregions. In the Mojave Desert specifically, concentrations of these terminal Pleistocene artifacts are often found along remnant shorelines of Pleistocene lakes (i.e., Dillon 2002; Warren and Phagan 1988), though a recent find documented a Clovis point in the southeastern Mojave Desert near Twentynine Palms (Byerly and Roberson 2015). Other artifacts found in these assemblages may include lunate and eccentric crescents, small flake engravers, a variety of scrapers, leaf-shaped knives, basally thinned lanceolate points, drills, and heavy choppers or hammer stones (Campbell et al. 1937; Sutton et al. 2007; Warren and Crabtree 1986). Our current understanding suggests that Paleoindian populations lived in small, highly mobile groups, who ranged over long distances, hunting, and gathering near permanent or perennial sources of water such as pluvial lake and outwash drainages, though most of the details remain speculative, and ongoing discoveries and newly refined analytical techniques are constantly yielding new information, reshaping our knowledge of some of the earliest inhabitants of the Americas (see Graf et al. 2014).

Specific to the EPL Project, extensive Lake Mojave complex sites and a few rare fluted projectile points have been documented in the vicinity of the project APE/API, for example on the shorelines of Silver Lake (Campbell et al. 1937; Wallace 1962; Warren 1984a). These sites are typically identified by the presence of fluted point bases and stemmed points that tend to occur as small surface scatters or isolated surface finds (Elston and Budy 1986), likely as a result of ongoing eolian erosion and other taphonomic processes (Delacorte et al. 1995). Within the broader region, bifaces and formally shaped unifacially flaked stone tools are often associated in contexts with diverse intact assemblages (Giambastiani 2004:34), supporting the notion of these early hunter-gatherer populations as highly mobile groups inhabiting large geographic areas with specialized, portable tool kits (Delacorte et al. 1995; Halford 2008;

Kelly and Todd 1988). Research examining distance and source variation in tool stone further supports this notion of highly mobile groups ranging over large geographic areas (Basgall 1989; Eerkens et al. 2007), although the diverse resource base found within parts of the Great Basin could have allowed for significant variability in resource acquisition and adaptive strategies in localized areas and at various points in time (Fowler and Fowler 1990).

Fundamentally, a lack of datable archaeological remains (i.e., organic materials like charcoal, bone, and shell) in secure contexts has hindered the further refining of this period in the Mojave Desert and southwestern Great Basin, as most archaeological sites in the area are composed predominantly, or entirely, of lithic tools and associated debris.

5.5.1.2.2 Early Holocene: Lake Mojave and Pinto/Little Lake Complexes

The Early Holocene was a time of profound environmental change globally, as the cold and wet climate that characterized the Pleistocene transitioned to the comparatively warmer and wetter climate of the Early Holocene. Temperatures were warmer than during the Terminal Pleistocene but remained cooler and moister than today, which significantly altered the Mojave Desert region, allowing the proliferation of highly productive shallow lakes and marshes as desert vegetation flourished with the emergence of white bursage and creosote bush (Byers and Broughton 2004; Greyson 1992, 2000; Sutton et al. 2007). Data from lake level studies in the Mojave Desert indicate that the general drying trend that began during the Terminal Pleistocene gave way to wetter conditions between roughly 10,000 and 8,000 years ago (Benson 2004). Lithic sourcing studies suggest that the foraging ranges of Early Holocene populations in the Great Basin paralleled climatic trends, with foraging ranges shifting as wetlands diminished after around 9,000 years ago (Jones et al. 2003). Shifting climate and oscillations in precipitation, along with a general drying of the pluvial lakes in the region, also mirrored shifts in the distributions of animal and plant resources people relied on, necessitating a more diverse subsistence strategy with inherent flexibility that allowed them to adapt to oscillating environmental conditions (Sutton et al. 2007). Though traditional accounts suggest lower population densities in the western desert regions during the Early Holocene, recent research has challenged these notions by indicating that site densities in the northwest Mojave equal or rival those of later periods (Eerkens et al. 2007), typically as evidenced by sites containing stemmed points. Site types attributed to the Lake Mojave Complex include extensive residential components, workshops, and small camp sites, suggesting varied settlement organization at this time (see Sutton et al. 2007).

Much of what we know about lithic toolkits from this period is based on sites that were deposited along the shorelines of now dry lakebeds (Moratto 2004), and so is applicable to the Mojave Desert and Great Basin generally, where such contexts are common. It is generally understood that Early Holocene climate was variable with significant oscillations in precipitation, such that over the long-term pluvial lakes were likely inconsistent sources of water and associated resources, with recent studies suggesting that people occupied terrain beyond the margins of extinct lakebed shorelines (Giambastiani and Berg 2008:14). The presence of exotic materials, like beads manufactured from marine shell (e.g., *Olivella*), uncovered in Lake Mojave and Great Basin deposits, suggest that people were highly mobile and/or interacted and traded with other groups over long distances, including between southern California and the northwestern Great Basin into what is now Oregon (Jenkins and Erlandson 1996; Smith et al. 2016; see Sutton et al. 2007). Extensive archaeological research at Fort Irwin identified sites with stemmed points exhibiting a significant variety of material sources, high numbers of formalized tools, and ground stone artifacts, demonstrating the diversity of Early Holocene archaeological assemblages in the region (Basgall 1991, 1993; Douglas et al. 1988; Giambastiani 2004).

Two primary archaeological complexes are now attributed to the Early Holocene in the Mojave Desert and southwestern Great Basin. The Lake Mojave Complex, typically defined based on a variety of stemmed point types (i.e., similarity with Western Stemmed or Great Basin Stemmed traditions), was originally considered the oldest cultural complex in the region, and appears to continue until approximately 6000 B.C. The Pinto Complex was previously believed to be a Middle Holocene cultural manifestation, but increased research in the past couple of decades has shown that this cultural complex began in the Early Holocene as well, with data from central and northern Mojave Desert sites indicating a temporal overlap between the Lake Mojave and Pinto cultural complexes, which are both evident in the region during the Early Holocene (Sutton et al. 2007). Some degree of continuity is suggested between the Lake Mojave and Pinto complexes in that flaked stone tool technologies are both characterized by a frequent use of core tools that are both bifacially and unifacially worked, along with the frequent selection of toolstone other than obsidian and cryptocrystalline silicas (Sutton et al. 2007). Despite some similarities, however, the two complexes are currently believed to be distinct based on consistent differences in site distributions and artifact assemblages (notably the relative abundance of ground stone implements), as well as hydration ranges on obsidian artifacts (Basgall 1995; Warren 2002).

5.5.1.2.2.1 Lake Mojave Complex

The Lake Mojave Complex is the earliest regionally specific cultural manifestation in the Mojave and southwestern Great Basin. Primary lithic tools include stemmed points of the Great Basin Series, which are morphologically and chronologically consistent with large-stemmed points often attributed to the Western Stemmed Point Tradition found elsewhere in western North America and the broader Great Basin region (Beck and Jones 1997). Lake Mohave and Silver Lake points are the regionally specific projectile point types identified for the Lake Mojave Complex and recent statistical analysis has confirmed their validity as distinct point types (Knell et al. 2021). Bifaces are also abundant, along with steep-edged unifacial scrapers, crescents, along with some core tools and ground stone implements, though these are much less frequent than in sites attributed to the Pinto Complex. Flaked stone tools are often retouched suggesting multi-use trajectories and are generally consistent with long-term use and transport. Wide ranging interaction spheres are evidenced by the common use of nonlocal lithic materials and beads made from marine shells, including *Olivella* from the California coast. Ground stone implements are present, but in low numbers and ephemeral use-wear suggests processing was minimal.

The generalized settlement pattern for the Mojave Lake Complex appears to reflect a forager-focused strategy intent on utilizing numerous types of resource patches across a variety of environmental settings and was organized around small social units (Sutton et al 2007). The dynamic nature of localized environments during the Terminal Pleistocene and earlier part of the Early Holocene meant climatic oscillations and at least some degree of unpredictability in resource distribution and interannual abundances, contributing to the need for this more fluid cultural structure.

5.5.1.2.2.2 Pinto and Little Lake Complexes

The Pinto Complex, or Pinto Basin Complex, was originally associated with the Middle Holocene and was somewhat controversial for decades with archaeologists subscribing to one of two primary interpretations referred to as the short chronology and the long chronology based on the notion that the Pinto Basin Complex was a continuation of the earlier Mojave Complex (see Moratto 2004; Sutton et al. 2007). Work in recent decades, however, has pushed back the beginning of the Pinto Complex to the Early Holocene and shown it to overlap with the Lake Mojave Complex; it is now thus considered a distinct cultural manifestation (Sutton et al. 2007). Aside from the diagnostic point types after which the complexes are named, the biggest distinction between the Lake Mojave and Pinto complexes are the

relative amounts of milling tools, with sites attributed to the Pinto Complex containing more ground stone and milling tools indicating an increase in plant processing by at least 9,000 years ago. Revised and new dates for Pinto assemblages have now shown that a shift towards broad-spectrum economies, identified by the increased use of ground stone tools and implements, developed around the same time in both coastal and interior regions of southern California (Jones et al. 2002).

Distinctive characteristics of the Pinto Complex include Pinto projectile points in association with heavy-keeled scrapers along with flat milling stones and associated manos (Campbell and Campbell 1935) with site types ranging from small camp sites and workshops that likely represent seasonal rounds to extensive residential sites with deep middens and likely postholes suggesting centralized long-term residences (see Moratto 2004; Sutton et al. 2007). The Pinto complex is roughly synonymous with the Little Lake period in the southwestern Great Basin (i.e., Owens Valley) with characteristic artifacts including Little Lake points and Humboldt series points (Bettinger and Taylor 1974; Gilreath and Hildebrandt 1997). Extensive trade with coastal groups is evidenced by the presence of *Olivella* shells and beads in sites from this period. Faunal remains include similar taxa to Lake Mojave assemblages with lower frequencies of artiodactyl remains, indicating more focus was placed on smaller fauna.

5.5.1.2.3 Middle Holocene: Pinto Complex Continues

During the Middle Holocene, the climate was drier and warmer than previous and subsequent periods, though it remained highly variable with oscillations between wetter and drier conditions occurring throughout the period with localized variation occurring within the Mojave Desert. Lake level studies in the Mojave Desert indicate the presence of shallow and rapidly oscillating lake levels between roughly 8,000 and 6,500 years ago, followed by persistently dry lake beds thereafter (Benson 2004). Although some of the larger lakes and marshes of the Early Holocene may have dried up during this period, streams and springs in the Mojave Desert likely maintained some degree of water flow from nearby ranges at various times and places, providing suitable water sources, albeit at lower densities (Aikens 1978; Basgall 2000; Cleland and Spaulding 1992; Sutton 1996; Warren 1984a). Fairly dramatic upslope movements of pinyon-juniper woodland and bristlecone pine during the Middle Holocene have been noted for the southwestern Great Basin, with the abundance of thermophilous (i.e., warm weather–adapted) shrubs increasing at the expense of more mesic taxa during the same period in the Mojave Desert (Byers and Broughton 2004).

Between 7,000 and 5,000 years ago, the Mojave became increasingly arid as temperatures rose and lowland ephemeral lakes and streams began to dry up. Subsequently, vegetation communities capable of supporting large game became limited to a few isolated contexts. Settlement patterns suggest a shift to upland settings where sources of fresh water still existed, and a withdrawal to desert margins and scattered oases (Sutton 1996; Warren 1984a). These shifts were believed to correlate with changes in lithic tool assemblages, marking the emergence of the Pinto Complex, distinguished by characteristic Pinto projectile points (Warren 1984a); however, recent research has shown that the Pinto Complex began during the Early Holocene and continued during the Middle Holocene. The Pinto Complex is generally characterized by small, mobile populations who continued to remain dependent on hunting and gathering, though the use of ground stone implements increased, suggesting that processing of hard seeds was becoming increasingly important to subsistence (Elston 1982)

There is evidence to suggest a broader range of resources than previously used were being procured in both the broader southwestern Great Basin and Mojave Desert during this period, along with potentially lower population densities, towards the latter part of the Middle Holocene as the climate became increasingly hotter and drier (Giambastiani 2004). Diversity in artifact assemblages from this period is often interpreted

as a response to climatic shifts, including the presence of flaked lithic hunting tools used to hunt smaller game and ground stone milling equipment used for the processing of seed and plant resources.

Environmental conditions shifted toward the end of the Middle Holocene, becoming hotter and drier in the Mojave Desert region and few archaeological sites date to the period between roughly 5,000 and 4,000 years ago, suggesting an occupational hiatus may have occurred. It is not likely that the area was abandoned entirely, but the dearth of archaeological deposits from this roughly thousand-year period suggests that human population densities were much reduced during the latter part of the Middle Holocene (Sutton et al. 2007).

5.5.1.2.4 Late Holocene: Cultural Complexes of the Mojave Desert

During the Late Holocene the climate of western North America was cooler and moister than during the Middle Holocene, though the Late Holocene was punctuated by periods of drought and significant climatic episodes. Two primary climatic shifts occur during this period: the Medieval Climatic Anomaly, a series of "megadroughts" that occurred between roughly A.D. 350 and 1350 (Cook et al. 2004), and the Little Ice Age, a period of cooler climate between roughly A.D. 1300 and 1860. Climatic variability continued through this period, producing oscillating lake stands along with likely shifts in available animal and plant resources requiring an intensification and diversification of adaptive strategies by Native people (Giambastiani 2004). Native subsistence organization diversified to include increased use of lower-ranked, or marginal, plant and animal resources. These changes were mirrored by organizational changes in technology, including new types and styles of tools, including the bow and arrow and ceramic pots, and possibly bedrock mortars, along with increased diversity of projectile point forms, temporal and spatial shifts in archaeological patterning, increased regional variation, and a general increase in the frequency of archaeological sites (Giambastiani 2004). These changes in subsistence, mobility, and technological organization are correlated with adjustments in artifact or tool assemblage content and diversity, resulting in the emergence of several widely recognized cultural complexes within the Late Holocene period (Bettinger and Taylor 1974; Eerkens and Spurling 2008:112–113; Halford 2008; Sutton et al. 2007; Sutton 2017), which are briefly defined below. It should be noted that several of these cultural periods overlap and that some of the naming conventions are specific to either the southwestern Great Basin or Mojave Desert regions.

5.5.1.2.4.1 Late Holocene: Mojave Desert

5.5.1.2.4.1.1 <u>Gypsum Complex</u>

The Gypsum Complex (ca. 4000 to 1800 cal B.P.) is characterized by a higher density of sites than the preceding period, suggestive of larger population densities on the landscape engaging in a broad range of economic activities in the Mojave Desert, along with high rates of mobility and extensive trade networks that extended across much of western North America. Chronometric dates and general patterns for the Gypsum Complex are relatively consistent between the larger Great Basin region and the Mojave Desert subregion (Warren 1984); though archaeological deposits attributed to this complex are more prevalent in the western and northern Mojave Desert and scarcer in the southern and eastern extent of the Mojave Desert. Recent geoarchaeological studies suggest that chert pavement quarrying undertaken during logistical forays increased during the earlier part of this period as a primary component of localized biface production, supporting the notion of the Gypsum Complex as representative of residential stability (Byrd et al. 2009). Diagnostic lithic artifacts from this complex consist of medium to large corner-notched (Elko series), concave base (Humboldt series), and well-shouldered contracting-stemmed (Gypsum series) projectile point forms (Sutton et al. 2007). Hunting continued to be an important subsistence activity but sites from this period often contain higher densities and diversity of ground stone artifacts, as milling

technology became more common, and the mortar and pestle entered the regional record. This indicates that plant foods requiring processing were being used more frequently. Increased evidence of contact with groups from the California coast and the Southwest is seen in the introduction of split-twig figurines and zoomorphic petroglyphs, which also imply ritual activity (Fowler and Madsen 1986). The Newberry Cave site, one of the primary site types for this complex, contains evidence suggestive of increased trade and social complexity, including ritual activity, in the form of split-twig figurines, pictographs, and wands (Davis and Smith 1981; Warren and Crabtree 1986) similar to those found in sites along the southern California coast. These assemblages also include rectangular-base knives, flake scrapers, infrequent large scraper planes, choppers, and hammer stones.

Sites from this complex have been found in rockshelters, though the occupation of open sites continued, and base camps with extensive midden development are a prominent site type in well-watered valleys and near concentrated subsistence resources (Warren and Crabtree 1986). Additionally, several types of special-purpose sites and the use of long-term residential base camps with substantial structures is seen at this time, along with an increase in obsidian extraction from major regional quarries, primarily to produce bifaces and for trade (Eerkens and Spurling 2008). This includes the production of smaller bifaces that appear to have been related to the use of the bow and arrow rather than the atlatl and dart (Giambastiani 2004). Shifts in subsistence and settlement patterns appear to correlate with increased exploitation of desert scrub habitats, with more seasonal use of riparian zones, along with increased curation of lithic tools like obsidian bifaces and milling equipment (Halford 2008). There appears to have been a general decrease in mobility later in the period, along with a reorganization of settlement patterns and sociopolitical organization, which became more defined in later temporal phases.

5.5.1.2.4.2 Rose Spring Complex

The Rose Spring Complex (1800 to 900 cal B.P. [A.D. 200 to 1100]) marks a dramatic shift in cultural systems in the Mojave Desert, particularly in the western part of the region, including increased and widespread use of the bow and arrow as seen in the diagnostic projectile points for this complex (Gardner 2006). There is some indication the bedrock milling features with mortars, though generally rare in the region relative to other areas of California, may also have first appeared during this period (Whitaker and Parker 2021), although as noted above milling technologies indicative of plant processing date to much earlier. There is some indication of increased rainfall creating a more mesic (moderately moist) environment in the southern Sierra Nevada and western Mojave during the beginning of this period (Gardner 2006; Sutton 1996), but the advent of the Medieval Climatic Anomaly (MCA), which then intensified for several hundred years, resulted in at least some desiccated lakebeds in the western Mojave and a need for people to find alternative, typically more ephemeral sources of water (Sutton et al. 2007). Archaeological patterning suggests substantive increases in human population density, along with significant changes in artifact assemblages and the presence of well-developed middens in the western Mojave (Sutton et al. 2007). Common artifacts associated with this complex include large quantities of obsidian, Eastgate and Rose Spring projectile points attributed to the advent of the bow and arrow, stone knives, drills, milling technology and ground stone pipes, awls manufactured from animal bone, and marine shell beads and ornaments (Sutton 1996; Warren and Crabtree 1986). Archaeological sites attributed to this complex are often situated near springs, washes, and lakeshores, and contain evidence of architectural structures including pit houses and wickiups indicating intensive occupation and some degree of sedentism. This focus of occupation on specific favorable spots on the landscape is also apparent in the increased frequency of such features as bedrock milling stations, which in themselves may provide evidence of long-term or repeat occupation including ownership and territoriality (Whitaker and Parker 2021). The extremely high frequency of obsidian in Rose Spring assemblages indicates that

procuring and processing obsidian was an essential and primary aspect of settlement and subsistence systems. Additionally, most of the tested obsidian artifacts from Rose Spring deposits in the western Mojave have been sourced to the Coso Volcanic Field, demonstrating extensive interaction or travel to this locality (Gardner 2006; Gilreath and Hildebrandt 2011). Based on available faunal data, the subsistence focus appears to have been on medium- to small-sized game, namely lagomorphs and rodents.

5.5.1.2.4 Late Prehistoric Complexes of the Mojave Desert

The Late Prehistoric and Protohistoric period is defined for the Mojave Desert as that period approaching and during first contact with Euro-American people (Warren 1980; Warren and Crabtree 1986). Regional developments in new technologies and the presence of numerous cultural complexes emerge during this period, likely representing the ancestral populations of ethnographic Native groups (Sutton et al. 2007). Diagnostic artifacts for this period primarily consist of Desert series points including Desert Side-notched and Cottonwood projectile points, and buff ware and brown ware ceramics (Warren and Crabtree 1986). Also present in assemblages from this period are large triangular knives, unshaped manos and metates, mortars and pestles, incised stones, steatite beads, slate pendants, and marine shell beads, suggestive of well-established trade networks and interactive spheres with coastal southern California and across the Great Basin (Sutton et al. 2007).

These cultural complexes represent prehistoric aspects of known ethnographic groups who resided in the region at the time of Euro-American contact. During the last roughly one-thousand years, two primary interaction spheres were in place connecting people and materials across the Mojave Desert and southwestern Great Basin, with the Mojave River serving as the natural boundary between them (Sutton et al. 2007). The northern sphere is characterized by the predominant presence of Desert Side-notched points with some Cottonwood projectile points, along with mostly brown ware ceramics and lower quantities of buff wear ceramics near the Mojave River, along with predominant use of obsidian from northern sources like the Coso Volcanic Field. The eastern sphere is characterized as containing mostly Cottonwood projectile points and the exclusive use of local obsidian source localities, along with the presence of both brown ware and buff wear ceramics.

During the last roughly one-thousand years, developments in the southern and western Mojave Desert, namely south of the Mojave River and Providence Mountains, diverged from those in the northern and western Mojave Desert, reflecting influences of lower Colorado Hakataya populations in the southeast. Centered primarily on the lower Colorado River, Hakataya assemblages are characterized by brown, buff, and red-on-buff pottery, and Desert Side-notched and Cottonwood triangular projectile points, which have been found along the length of the Mojave River and into the Mojave Sinks (Drover 1979; Rogers 1929; Smith 1963). Archaeological evidence of Hakatayan occupation includes floodplain farming along the Colorado River, and a variety of features of stone construction, such as rock alignments, stone-lined roasting pits, and walled structures (Schroeder 1952).

The influence of Ancestral Puebloan (southwest United States) populations in the form of pottery is also evident in the southwestern areas of the Mojave Desert during this period (Lyneis 1995; Warren and Crabtree 1986). Ancestral Puebloan–style pottery has been found as far west as Halloran Springs (Blair 1985; Blair and Winslow 2004; Leonard and Drover 1980; Rogers 1929; Warren 1980) and the Cronise Basin (Larson 1981; Rogers 1929), though it remains unknown whether the presence of pottery reflects population migration and long-term habitation (Berry 1974; Fowler and Madsen 1986; James 1986; Rafferty 1984; Shutler 1961; Warren and Crabtree 1986), or temporary use of the area for turquoise extraction near Halloran Springs (Blair 1985; Blair and Winslow 2004; Leonard and Drover 1980; Rogers 1929; Warren 1980), or if it was part of the trade and interaction network in the Mojave that included

marine shells, obsidian, and salt (Harrington 1927; Heizer and Treganza 1944; Hughes and Bennyhoff 1986; Morrissey 1968; Pogue 1915; Ruby 1970; Shutler 1961). Recent analysis, however, suggests that ceramic vessels in the southwest Great Basin and Mojave region were conveyed in the context of seasonal mobility or short-term residential movement, rather than through political and technological models of conveyance, as had been commonly assumed (Eerkens 2011).

While the idea is controversial, researchers have suggested that Numic-speaking peoples began to move across the Great Basin region from the Death Valley area around 1,000 years ago (Lamb 1958). This hypothesis suggests that the Numa were able to displace previous inhabitants due to their adaptive strategies oriented around the exploitation of a more diverse range of plant resources (Bettinger and Baumhoff 1982) and is supported both by similarities in artifact types and by glottochronological theory (the use of statistics to date the divergence of languages) (Lamb 1958), with some suggesting a competitive interaction between the Numic and pre-Numic groups in the Great Basin (Young and Bettinger 1992). However, the details of this model remain a topic of debate.

5.5.1.3 Ethnographic Background

The APE/API is located primarily within the traditional territory of two ethnographically distinct Native American groups: the Serrano/Vanyume and the Southern Paiute. A brief discussion of each group is presented below; additional detail is provided in the Ethnographic Literature Review prepared for this project (Martinez and Lisboa 2019a). The following ethnographic summaries are compiled from scant ethnographic and ethnohistoric sources that include a number of biases and should be taken as general accounts of Native lifeways observed at the time of European contact and later (after Indigenous lifeways had been severely disrupted by European presence in the Americas) that likely exclude at least some primary aspects of cultural identity and practices. It should be noted that the discussion is presented according to broad ethno-linguistic groups as identified ethnohistorically, which do not necessarily correspond with modern tribal organizations or affiliations.

Native groups in the EPL Project area stem from Shoshonean stock of the Uto-Aztecan language family, which encompassed roughly a third of what is now California, stretching from the northeastern corner to the southwestern portion of the state (Kroeber 1925). Most of the Shoshone territory, however, was in the Great Basin region east and north of California and included parts of multiple states.

5.5.1.3.1 Serrano/Vanyume

The Serrano people once occupied the southwestern Mojave Desert and Inland Empire region of San Bernardino and Los Angeles counties. The Serrano language is part of the Serran branch of the Takic family of the Uto-Aztecan linguistic stock (Mithun 2004). The term “Serrano” appears to have acquired an ethnic definition during the ethnohistoric period as pertaining to the Indigenous people who inhabited the San Bernardino Mountains, with the term “Serrano” meaning “mountaineers, or those of the Sierras” (Kroeber 1925:611). The traditional territory of the Serrano is believed to have encompassed much of the Mojave Desert and San Bernardino Mountains, including the base and north of the San Bernardino Mountains east of Cajon Pass near Victorville, east to Twentynine Palms, and south to the Yucaipa Valley, with the Vanyume territory extending northward along the Mojave River (Bean and Smith 1978; Bean and Vane 1994). The Serrano called themselves the Maara’yam, which included multiple clans including the Yuhaaviatam, or “People of the Pines” (San Manuel Band of Mission Indians 2021).

The Vanyume lived along the Mojave River and associated Mojave Desert areas and are also referred to as the Desert Serrano. Whether they spoke a dialect of Serrano or a separate Takic language is unclear from the few known words (Mithun 2004); however, Kroeber (1925) placed the Vanyume language

closer to the Kitanemuk than to the Serrano of the San Bernardino Mountains. The traditional territory of the Vanyume was only vaguely known during the ethnohistoric period and no clear delineation was recorded but it was suggested to be begin several miles east of the Mohave River sink and continue to Daggett or Barstow (Kroeber 1925).

According to the records of Fr. Francisco Garcés, the first European to travel in this region in 1776, the name *Vanyume* is derived from the term for "them" (*Beñeme*) used by the Mojave (Coues 1900:Vol.1:240). Very little is known of the Vanyume-speaking people because their cultural traditions and lifeways were severely disrupted by Spanish missionaries beginning in the early 1820s. By the 1900s, reports indicate that very few Vanyume people remained in their traditional territory (Bean and Smith 1978:570; Kroeber 1925:614). Therefore, much of what we know about the Vanyume is derived from accounts of the larger Serrano group. Kroeber (1925:614–615), however, suggests there were political distinctions between the Serrano and Vanyume as the Vanyume were friendly with the Chemehuevi and Mohave to the east, whereas the Serrano maintained mutual animosity with these groups. The area of combined Serrano/Vanyume occupation—the San Bernardino Mountains, the southwestern portions of the Mojave Desert, and the Mojave River area—has become known as the Serrano area, though this distinction may be a result of early historic disruptions to the Vanyume as a distinct culture group, and inherent biases of ethnographers and historians during the historic period.

Most Serrano lived in small village-hamlets in the foothills, though some resided out on the desert floor near water sources (Bean and Smith 1978:571). Kroeber (1925:617–618) considered the organization of Serrano lineage sets similar to that of political groups. He defined a lineage set as occupying one village, representing at least two moieties, and coordinating its hunting and gathering activities according to the religious deliberations and scheduling determined by two leaders (one from each of the moieties), with one leader occupying the ceremonial house and the other possessing the ceremonial bundle. Often, a lineage set had the exclusive power to forge and maintain economic ties to other villages of neighboring Serrano, Cahuilla, Chemehuevi, Gabrielino, and Cupeño. Desert Serrano villages are mentioned in the 1776 account of Fr. Francisco Garcés, and in the records dating to the early 1800s kept by Fr. Joaquín Nuez. Fr. Garcés mentions villages along the Mojave River near today's city of Barstow and the community of Daggett (Coues 1900: Vol. 1:241–248). Beattie (1955) suggests the average village population was around 70 people, and that these settlements were generally spaced at 10-mile (16-km) intervals along the river.

A variety of materials were used for hunting, gathering, and processing food, many of which were also used for shelter, clothing, and ceremonial items. Technological similarities have been noted between the Serrano and their neighbors, particularly the Cahuilla (Bean and Smith 1978). Shell, wood, bone, stone, and plant fibers were used to make a variety of implements along with highly decorated baskets (Smith and Simpson 1964). The Serrano made pottery and used it daily to carry and store water or foodstuffs; and ceramics were also used as ceremonial objects. They also made bone awls, sinew-backed bows, arrows, arrow straighteners, throwing sticks (for hunting), traps, fire drills, stone pipes, musical instruments of various types (rattles, rasps, bull-roarers, and whistles), yucca-fiber cordage (for snares, nets, and carrying bags), and clothing (Bean and Smith 1978; Bean and Vane 2002). A strong tradition of basket weaving incorporated the use of multiple materials including juncus sedge, deergrass, and yucca fiber.

Mainly due to the inland territory that the Serrano occupied beyond Cajon Pass, contact between the Serrano and Euro-Americans was relatively minimal prior to the early 1800s, though European diseases began decimating Native populations in the Mojave Desert and Antelope Valley beginning in the late 1700s (San Manuel Band of Mission Indians 2021). As early as 1790, the Serrano began to be drawn into mission life and were involuntarily marched to the Asistencia in Redlands, an outpost of the San Gabriel

Mission (Bean and Vane 2002; San Manuel Band of Mission Indians 2021). More Serrano were relocated to Mission San Gabriel Arcángel in 1811 after a failed Indigenous attack on that mission. In the 1860s, a smallpox epidemic decimated many Indigenous people from southern California, including the Serrano (Bean and Vane 2002). Oral accounts of a massacre in the 1860s at Twentynine Palms indicate it may have been part of a larger American military campaign that lasted 32 days (Bean and Vane 2002:10).

Some of the surviving Serrano sought shelter at Morongo with their Cahuilla neighbors, which later became a formal reservation and is currently known as the Morongo Band of Mission Indians (Bean and Vane 2002). Other survivors followed the Serrano leader Santos Manuel down from the mountains and across the valley floor, eventually settling what later became the San Manuel Band of Mission Indians Reservation, which was established in 1891 (San Manuel Band of Mission Indians 2008). Although ethnographers considered the Vanyume to be a sparse and mostly unknown population during the early 1900s (Bean and Smith 1978; Kroeber 1925), recent genealogical research combined with mitochondrial DNA analysis indicates three lineages from the Fort Tejon area were originally from the village of Topipabit downstream from Victorville (California Energy Commission 2008:4.3–11). These lineages are currently part of the San Fernando Band of Mission Indians, located in Newhall. This group, which includes Kitanemuk, Inland Chumash, Tataviam, and Vanyume, has applied for formal federal recognition (San Fernando Band of Mission Indians 2021).

5.5.1.3.2 Southern Paiute

The Southern Paiute is a linguistic and cultural group who inhabited the northern Southwest and the southeastern Great Basin regions and is distinctly separate from the Northern Paiute, who speak a mutually unintelligible language (Bunte and Franklin 1994). The Southern Paiute also are related to the Shoshonean Plateau and belong to the Southern Numic branch of the Uto-Aztecan linguistic family, which includes 15 subgroups: Antarianunts, Kaiparaowits, San Juan, Kaibab, Shiwits, Uinkaret, Saint George, Gunlock, Cedar, Beaver, Panaco, Pahranagat, Moapa, Las Vegas (including Pahrump), and Chemehuevi (Kelly and Fowler 1986). Some ethnographers consider the Chemehuevi a separate group from the Southern Paiute, though the differences between them and other Southern Paiute groups are minimal and are generally attributed to cultural adaptations to localized environmental variation (Theodoratus et al. 1998). Additionally, Kroeber (1925:593, 595) considered the Chemehuevi to be "Southern Paiutes", suggesting close ties and cultural similarities between these groups; noting that the Chemehuevi and Southern Paiute called themselves Nüwü, meaning "people", and corresponding to the Mono and Northern Paiute term Nümü. The traditional territory of the Southern Paiute is vast, ranging from the Colorado Plateau to the Mojave Desert, including the Colorado River basin and multiple small mountain ranges, and encompasses a great deal of environmental variation (Kelly and Fowler 1986).

Southern Paiute subsistence was centered on gathering and hunting what was available in their local environments. The inherent environmental differences in the territories occupied by various Southern Paiute groups were reflected in the resources they exploited for subsistence as well as in the procurement strategies they employed (Theodoratus et al. 1998). Primary dietary resources included mostly small game animals, such as rabbits and tortoises, in addition to rodents, lizards, and possibly other reptiles, as well as fish and mountain sheep, along with a variety of seeds and mescal (Kelly and Fowler 1986; Kroeber 1925). The Southern Paiute exploited a variety of flora, including piñon nuts and agave, for food. Additionally, some groups practiced small-scale agriculture, growing maize, squash, and winter wheat among other things (Kelly and Fowler 1986; Kroeber 1925). By the time of European contact, the Southern Paiute had optimal irrigation systems and had been farming for centuries along the Colorado River (Stoffle and Zedeno 2001:234). The Southern Paiute were skilled basket weavers; they used baskets to carry a wide variety of resources, ranging from seeds and berries, and they carried water in finely

woven baskets sealed with pine pitch (NPS 2018). The basic socioeconomic unit of the Southern Paiute was the family household. Centralized political hierarchy was not recorded for this group during the ethnohistoric period, though it was noted that households would cooperate during hunting and gathering activities. Immediately after marriage, matrilocal residence was common, though in the longer term most would permanently settle near the husband's relatives (Kelly and Fowler 1986).

At the time of Euro-American contact, Southern Paiute territory stretched across Arizona, Utah, Nevada, and California, though the 10 modern Paiute groups retain only a small portion of their traditional territory, with tribal members living in many varied communities both on and off reservations (Bunte and Franklin 1994). In California, the Twenty-Nine Palms Band of Mission Indians is a federally recognized Tribal entity including many descendants of the Chemehuevi people (Twenty-Nine Palms Band of Mission Indians 2021).

Additional detail is provided in the Tribal Cultural Resources section (Section 5.18) of this document.

5.5.1.4 Historic Background

The history of the project area and surrounding area is herein broken into three main periods: the Spanish period (1769–1821), the Mexican period (1821–1848), and the American period (1848–present).

5.5.1.4.1 Spanish Period

Early European presence during the Spanish period, marked by the overland expedition of Captain Gaspar de Portolá in 1769, was generally limited to coastal regions of California and only impacted interior California later. Portolá led a group of 64 soldiers, missionaries, Baja California Native Americans, and Mexican civilians to the San Diego area, where they established the Presidio of San Diego, a fortified military outpost and the first Spanish settlement in Alta California. The Mission San Diego de Alcalá (approximately 130 miles south of the west end of the EPL Project), established by Franciscan missionary Fr. Junípero Serra, was the first of 21 missions established in Alta California between 1769 and 1823. The mission system impacted Indigenous communities in the EPL Project area as Spanish colonialism and influence expanded. Captain Juan Bautista de Anza was the first to establish overland connections between California and Mexico. In 1774, he led a group of 34 padres, soldiers, and others across the Colorado River into the present-day Imperial Valley, approximately 230 miles southeast of the western end of the EPL Project. De Anza made another expedition along the same route in 1775 with a larger group and continued all the way to San Francisco Bay (Guerrero 2006). After the expeditions of De Anza, several missions were established in the 1770s as far north as San Francisco. The 21 missions were parallel to the California coastline between present-day San Diego and Sonoma, with the coastline positions easy to defend and supply by ships. Similar to earlier Spanish exploration, no missions were placed inland.

The first documented expedition into the Mojave Basin and Range region of the EPL Project occurred in 1772, when Don Pedro Fages traveled from San Diego to San Luis Obispo via the Cajon Pass, the Mojave Desert, Hughes Lake, Antelope Valley, the Tejón Pass, Cañada de los Uvas (Grapevine Canyon), and Buena Vista Lake, all in pursuit of Spanish Army deserters (Hoover et al. 1990:126). Fages left the first written record of exploration in the southern San Joaquin Valley (OHP 2013). In 1776, Fr. Francisco Garcés is reported to have explored the region, including the Cummings and Tehachapi valleys in the Tehachapi Mountains, when traveling from the San Joaquin Valley to the Mojave River near Barstow, 27 miles north of the EPL Project. During this trip, he named a large river Río de San Felipe, now known as the Kern River. Historical accounts also indicate that Garcés left traces of his visit at Willow Springs (near Rosamond) and on Castle Butte (near California City). After this time, little documentation exists for European explorations or visits to the Mojave Desert and beyond until the 1800s; it is certain,

however, that such contacts occurred. Native Americans residing in these areas were also likely indirectly affected by disruptions in trade caused by European occupation of the coastal areas.

Although the Spanish were determined to gather all Native Americans into the mission system, there are numerous examples of interior Native villages that are not represented in the mission registers. As the Spanish presence in southern California increased, many Native neophyte converts attempted to escape the missions, seeking refuge with interior tribes including those in the Mojave Desert and adjacent mountains including the EPL Project APE/API. Due to its distance from the missions and presidios, what is now considered the Mojave Basin and Range region served as a haven for escaped fugitives, particularly Native Americans, and its exploration primarily came from expeditions sent after those fugitives, such as the Grandos Expedition of 1815 (Bancroft 1886). There were numerous forays into these regions by Spanish soldiers who were attempting to recapture runaway neophytes. The influx of Native peoples from different tribal territories brought about tribal intermixing and blurred territorial boundaries. In the early 1800s, the Spanish increased their efforts to incorporate Native Americans into the mission system. Native Americans from interior Tribes either were brought or went on their own volition to the San Gabriel and San Fernando Missions, established in 1771 and 1797, respectively. These missions may have exerted influence as far as the upper Mojave River.

5.5.1.4.1.1 Old Spanish Trail

The first major non-Native American transportation route through southern California was the Old Spanish Trail (ca. 1829), a trade route stretching between Santa Fe, New Mexico, and the coastal missions in southern California. Both Mexicans and Americans used this route to travel to California in the early 1840s. A segment of the route between Salt Lake City, Utah, and San Bernardino became known as the Mormon Trail for the steady flow of Mormon settlers traveling back and forth. During the Gold Rush, thousands of people traveled the Gila Trail or Southern Overland Trail from Texas to Arizona, then crossed the Colorado River at present-day Yuma into California and proceeded across the Colorado Desert to the San José Valley. The main trail continued from that point northward to Temecula and Los Angeles. Many left the main trail and traveled southward to San Diego, where they then journeyed via ship to San Francisco or took the inland coastal route to Los Angeles, rejoining the main trail to the goldfields. Thousands more traveled the Mojave River Trail, which Captain John C. Frémont named the Old Spanish Trail in 1844. Starting in Santa Fe and continuing through Utah and Arizona, the trail then crossed the Mojave Desert to reach the Mission San Gabriel Arcángel and the Pueblo de Los Ángeles. Northeast of Victorville near today's community of Daggett, a group of Native Americans told Frémont they had lived along the Mojave River and the mountains to the north and traded with other indigenous peoples in the region along the Mojave River Trail. Frémont's is the first account to use the name "Mojave River" (Frémont 1845:260).

5.5.1.4.2 Mexican Period

After more than a decade of intermittent rebellion and warfare, New Spain (Mexico and the California territory) won independence from Spain in 1821, beginning the Mexican period. In 1822, the Mexican legislative body in California ended isolationist policies designed to protect the Spanish monopoly on trade and opened California ports to foreign merchants. On July 25, 1826, Governor José Maria Echeandía issued a decree beginning the secularization of the California missions (Engstrand and Ward 1995), but because many Native Americans declined to vacate the missions, he issued a second decree on January 6, 1831, actively urging the Native Americans to leave the missions. Three years later, secularization became official under Governor José Figueroa with the Secularization Proclamation of 1834. Secularization of the missions resulted in the subdivision of former mission lands and establishment

of large ranchos. In keeping with the coastal settlement patterns of the Spanish, these ranchos were centralized near the coast and never extended past the San Gabriel Mountain Range just south of the western end of the EPL Project area. As the influence of the California missions began to wane from the 1820s through the early 1830s, land grants were initiated in the interior regions, partly to encourage population growth away from the more settled coastal areas. During the Mexican period, these ranchos became important economic and social centers, although none of them were within the EPL Project area.

During the 1830s, most Spanish laws and practices continued, and economic activity in southern California centered on agriculture and livestock-raising for subsistence and localized markets, as well as hide and tallow production for the international market. During the supremacy of the ranchos (1834–1848), landowners largely focused on the cattle industry and devoted large tracts to grazing. Cattle hides became a primary southern California export, providing a commodity to trade for goods from the east and other areas in the United States and Mexico. The number of non-Native inhabitants increased during this period because of the influx of explorers, trappers, and ranchers associated with the land grants. The rising California population contributed to the introduction and rise of diseases foreign to the Native American population, who had no protective immunities.

The first major non–Native American transportation and trade route through southern California was the Old Spanish Trail (ca. 1829), which extended between the trading hub of Santa Fe, New Mexico, and the coastal missions in southern California. The Old Mojave Trail became part of the Old Spanish Trail in 1827, when Antonio Armijo, a Mexican merchant, first established the 2,700-mile trade route, passing through the Colorado Plateau and the Mojave Desert. The Old Spanish Trail was first named in 1844 by Captain John C. Frémont, who published a report of his expedition through the area. Both Mexicans and Euro-Americans used the Old Spanish Trail to travel to California in the early 1840s. A segment of the Old Spanish Trail between Salt Lake City, Utah, and San Bernardino became known as the Mormon Trail because of the steady flow of Mormon settlers traveling back and forth starting in 1846 (Bean and Rawls 2003:58–71; Hoover et al. 2002:321–322).

Frémont's is the first account to use the name "Mojave River" (Frémont 1845:260). Northeast of Victorville, near today's community of Daggett, north of a portion of the EPL Project, a group of Native Americans told Frémont they had lived along the Mojave River and the mountains to the north and traded with other Indigenous peoples in the region along the Mojave River Trail. In addition to the Mojave River Trail (also Old Spanish Trail), other early routes through the California deserts included the southern Yuma route (Gila Trail, Southern Overland Trail, and Butterfield Stage Route), Brown's Wagon Road, the Bradshaw Trail, and Brown and Frink's Road. Frémont returned to the region in 1845, and again in 1846 with a larger force including several famous frontiersmen such as Kit Carson and Joseph Walker, who all eventually joined the American forces fighting in the Mexican–American War.

The Mexican-American War was a 2-year conflict between the United States and the Republic of Mexico that followed the U.S. annexation of the Republic of Texas. The war officially ended with the Treaty of Guadalupe Hidalgo in 1848, which resulted in the annexation of California and much of the present-day Southwest, ushering California into the American period. California officially became a state with the Compromise of 1850, which also designated Utah and New Mexico (with present-day Arizona) U.S. territories.

5.5.1.4.3 American Period

California officially became a state with the Compromise of 1850, which also designated Utah and New Mexico (with present-day Arizona) as U.S. territories. Horticulture and livestock, based primarily on cattle as the currency and staple of the rancho system, continued to dominate the southern California economy

through 1850s. The Gold Rush began in 1848, and with the influx of people seeking gold, cattle were no longer desired mainly for their hides but also as a source of meat and other goods. During the 1850s cattle boom, rancho vaqueros drove large herds from southern to northern California to feed that region's burgeoning mining and commercial boom. Cattle were at first driven along major trails or roads such as the Gila Trail or Southern Overland Trail, then transported by trains when available. The cattle boom ended for southern California as neighbor states and territories drove herds to northern California at reduced prices. Operation of the huge ranchos became increasingly difficult, and droughts severely reduced their productivity (Cleland 1941). Although many of the ranchos in the area remained intact after the United States took possession of California, a severe drought in the 1860s resulted in many of the ranchos being sold or otherwise acquired by Americans. Most of these ranchos were subdivided into agricultural parcels or towns, but ranching was to retain its importance through the mid-nineteenth century (Dumke 1944).

During the Gold Rush, thousands of people traveled the Gila Trail or Southern Overland Trail from Texas to Arizona, then crossed the Colorado River at present-day Yuma into California and proceeded across the Colorado Desert to the San José Valley. The main trail continued from that point northward to Temecula and Los Angeles. Many left the main trail and traveled southward to San Diego, where they then journeyed via ship to San Francisco or took the inland coastal route to Los Angeles, rejoining the main trail to the gold fields. Thousands more traveled the Mojave River Trail/Old Spanish Trail.

American politics and the need for a mild-winter route to the west favored a southerly thoroughfare from the eastern United States to California in the 1850s. The U.S. Gadsden Purchase of 1854 secured more land from Mexico for this route, and by 1857, surveys established the current international boundary from New Mexico west to California (Walker and Bufkin 1986). Wagon roads and railroads constructed across California's Colorado and Mojave deserts from the 1840s to the 1870s connected coastal California with the rest of the country. These modes of transport served to carry mail, prospectors, miners, entrepreneurs, merchants, immigrants, laborers, muleteers, settlers, and military personnel, as well as civilian and military supplies, livestock, produce, timber, and minerals produced by desert mines, among other necessities.

Following the Civil War, overland stage services to and from southern California resumed in 1868 with the Holladay and Wells Fargo operations (Nevin 1974; Stein 1994). Railroad surveyors first visited the area in the 1850s, but it was not until 1868, after the Civil War, that Congressional approval was given for a railroad charter. The pre–Civil War national initiative for a southern transcontinental railroad route resumed, as the Texas and Pacific (T&P) Railway Company in 1871 conducted transcontinental surveys to pursue the initiative. In 1873, however, the T&P's westerly construction stalled in north-central Texas. The resulting delay was critical, allowing San Francisco investors to extend their own Southern Pacific Railroad (SPRR) through Imperial Valley to the Colorado River in 1877, bridging the river at Yuma into Arizona along the T&P survey in 1878 (Yenne 1985). The Atlantic and Pacific Railroad (later the Atchison, Topeka, and Santa Fe [AT&SF] and currently the Burlington Northern Santa Fe) soon crossed the central part of San Bernardino County, linking the area with San Diego and the eastern states by 1887. The railroad activity led to the establishment of the city of Barstow in 1885, and the town continued to grow with additional rail lines and later the establishment of the interstate highway system in the 1920s and 1930s.

The construction of permanent roadways across the desert trails and wagon roads accompanied the increased use of the automobile at the turn of the twentieth century. The first highways across the Mojave Desert followed the Cajon Pass–Barstow–Needles route established by the Southern California Railway and the AT&SF. Established in 1912, the Ocean-to-Ocean Highway, now known as the National Old Trails Road, stretched from Baltimore, Maryland, to California. Established in 1926, most of U.S. Route 66 largely followed the Ocean-to-Ocean Highway, passing through the desert region south of Needles on its way across the country to Los Angeles. After U.S. Route 66 was decommissioned in 1985, parts of it

became Interstate 40 as well as Interstate 15. Other important highways that crossed through the region included the Randsburg/San Bernardino Road, which was added to the state system of secondary highways in 1933 and designated State Route 145. The highway was designated U.S. Route 395 (US-395) two years later (Johnson 2005).

5.5.1.4.4 Regional and Local Histories

Within California, the EPL Project corridor traverses San Bernardino County and the Mojave Desert Region before crossing into Nevada. This section includes a brief historical overview of these California regions from west to east, and includes brief histories of the cities, communities, and historic locations in the EPL Project vicinity.

5.5.1.4.4.1 San Bernardino County and the Mojave Desert Region

The Treaty of Guadalupe Hidalgo with Mexico in 1848 ushered the San Bernardino area into its American period. Horticulture and livestock, based primarily on cattle as the currency and staple of the Mexican rancho system, continued to dominate the economy through the first decade of the Gold Rush, which began in 1848. San Bernardino County was organized from parts of Los Angeles and San Diego counties in April 1853, and the city of San Bernardino became the county seat in 1854. Since World War II (WWII), several areas in the Mojave have experienced a boom in urban growth. Much of this expansion has centered on Barstow, Victorville, Hesperia, and Apple Valley in the west and near Twenty-nine Palms and Yucca Valley farther to the east. Along with an increased number of year-round occupants and weekend inhabitants, there is an ever-growing number of visitors to natural areas such as Joshua Tree National Park, which was established as a National Monument in 1936. Off-road vehicle users, rockhounds, and relic hunters have significantly increased their activities in the area. Accessibility to the region was made easier by the establishment of an interstate freeway system starting in California. The project APE/API passes through San Bernardino County and the Mojave Desert.

5.5.1.4.4.2 Hesperia

Hesperia was incorporated in 1988 and lies 80 miles northeast of Los Angeles. At the time of the 2020 Census, the city had a population of nearly 100,000 residents, many times the 1970 population of 5,000. Development of the Hesperia area started with the construction of the California Southern Railroad in 1881. The company laid tracks north from the San Diego through Cajon Pass, eventually reaching the Hesperia area. In 1885, deeds were filed and placed on record for the purchase of more than 30,000 acres of land just north of the Cajon Pass along the Mojave River. The presence of the rail line running through the center of the tract served as a major selling point. A plan to introduce water from the Mojave River through a system of ditches was negotiated and implemented which increased the value of land.

One of the key factors in supporting community growth in the Mojave was finding a reliable source of water. In the 1880s, engineers from the Hesperia Land and Water Company embarked on construction of the 5-mile Hesperia Ditch to carry water from the Hesperia Creek to the growing townsite. Construction of the ditch increased the regional use of water for farming, raising livestock, and supporting families. The early twentieth century was a time of moderate growth for the community of Hesperia, due to the completion of Route 66 in 1920. The community relied on agricultural pursuits through the middle of the century and through WWII. After WWII, in the mid-1950s, developer M. Penn Philips and champion boxer Jack Dempsey purchased land in the area, creating land subdivisions and establishing roads and infrastructure. The partners constructed a golf course and country club with the hopes of attracting buyers from the Los Angeles area. The centerpiece of the project was the Hesperia Inn, which housed the Jack

Dempsey Museum. Despite these improvements, growth was still modest. The community reached a population of 5,000 in 1950. Major growth came to Hesperia starting in the 1980s (Drylie 2010).

5.5.1.4.4.3 Apple Valley

Apple Valley, California, a town with a 2022 population of just over 77,000, is located in San Bernardino County, approximately 95 miles northeast of Los Angeles. Apple Valley became famous for its fruit orchards after Max Ihmsen, publisher of the *Los Angeles Examiner*, purchased and developed 320 acres of prized apple and pear trees in 1915. Cotton, corn and alfalfa, among other crops, were grown in Apple Valley, and the area became known for its agricultural products. Several ranches, poultry farms, and equestrian farms were started in the early part of the twentieth century, with some still operating today. In addition to being an agricultural center, Apple Valley was an attraction for some of Hollywood's most famous stars. The desert air and proximity to Los Angeles made Apple Valley a favorite destination of Hollywood actors and those looking for a healthful retreat. The Yucca Loma Ranch and the Apple Valley Inn frequently hosted Clark Gable, Carole Lombard, David Manners, and Dean Martin. Roy Rodgers and Dale Evans enjoyed Apple Valley to such an extent that they moved there in 1965 and were ultimately laid to rest at a cemetery in the town. The town was formally incorporated on November 28, 1988. Prior to incorporation, Apple Valley's population was 14,305 (in 1980), a figure that more than tripled (to 46,079) just a decade later (Lovato 2007).

5.5.1.4.4.4 Lucerne Valley

Lucerne Valley is an unincorporated area with a 2022 population of approximately 5,800, located in the Mojave Desert in San Bernardino County. The area was the location of what has been described as the last battle between Native Americans and immigrant settlers in California. This was the battle at Chimney Rock on February 16, 1867, which culminated with the Indians being forced from the valley. This opened the area for Anglo settlement, speeded by the discovery of a water source at Rabbit Springs in 1873. In 1916, the town was officially named by James "Dad" Goulding, who chose the English form of the French *luzerne* (alfalfa) in recognition of his success growing it using irrigation. Goulding settled what would later become known as Box S Ranch and developed the drainage ditch that would support the additional influx of settlers arriving to work the ranches, to grow crops such as apples, vegetables, pistachios, and alfalfa, and to raise livestock like cattle and horses. Post-WWII, Lucerne Valley continued to expand at a relatively slow pace and today remains a small, unincorporated community of ranchers, farmers, and miners (Lovato 2007).

5.5.1.4.4.5 Barstow

Barstow is in the Mojave Desert, equidistant between Los Angeles and Las Vegas. The project APE/API is approximately 25 miles south of Barstow. The city was founded in 1880 during a silver-mining rush and was first called Fishpond and then Waterman Junction. It was renamed to its current moniker in 1886 to honor William Barstow Strong, then president of the AT&SF Railway. The discovery of silver and later borax within the Barstow area prompted an influx of settlers to the region. The railroad linked to wagon roads and made Barstow a center of transportation. Ore was easily transported from the mines to various mills using the considerable transportation options available in Barstow at the time. As mining operations waned in the early twentieth century, Barstow's role as a transportation hub took off. Additional rail lines were laid through the city, with Barstow serving as a transfer point for people traveling to and from the West Coast. The construction of the Harvey House depot station and hotel in 1911, named the "Casa del Desierto," cemented the association between Barstow and the railroads. The construction of Routes 66 and 91 and later the interstate system, which all run through Barstow, ensured the city's growth and future existence (Walker 1986). The city saw rapid population growth from the

1950s through the 1970s (from 6,135 in 1950 to 17,442 in 1970). Thereafter the population growth of Barstow slowed significantly, increasing by approximately 5,000 people over the next 40 years. Known historic-era properties within Barstow are Barstow High School, located at First Avenue and Buena Vista Street, and the National Register of Historic Places (NRHP)-listed Casa del Desierto/Harvey House, located adjacent to the AT&SF railroad lines (BNSF after 1995 – Burlington Northern and Santa Fe Railway) on the northern end of the city. During WWII, the government established the Marine Corps Depot of Supplies east of Barstow at Nebo Center along the railroad. This became the Marine Corps Logistics Base, the largest Marine Corps supply and maintenance facility in the western United States. Barstow officially annexed Nebo Center in 2001, making the Marine Corps Logistics Base and the railroad the two primary employers in the town. At the time of the 2020 U.S. Census, Barstow's population was 25,419 (Robinson 1989).

5.5.1.4.4.6 Newberry Springs

Newberry Springs is an unincorporated area located in the Mojave Desert in San Bernardino County, 138 miles northeast of Los Angeles. Specific population information was not available for Newberry Springs-Baker area through the U.S. Census Bureau; however, secondary sources list the population at just over 2,600 residents in 2010. The 1800s brought an influx of settlers to the Newberry Springs area: mining attracted people looking to strike it rich in gold, silver, and iron ore; the establishment of ranches introduced cowboys to the area; and, in the later part of the century, farmers began growing alfalfa on the land. Agriculture continues to be an important industry in Newberry Springs, with many farmers growing alfalfa for use as cattle feed. By the 1920s, the Automobile Club of Southern California identified Newberry Springs as having fine water and good camping grounds at its nearby dry lake. In the mid-twentieth century, developers marketed the area of Newberry Springs as "a great place for a second home, a weekend getaway or retirement." The low cost of land and the ease with which private, human-made lakes could be built lured Angelinos to the desert. Today, Newberry Springs is a "water hole" in the Mojave where people come to participate in recreational activities like motocross racing and all-terrain vehicle (ATV) trail riding. Newberry Springs is about 15 miles northwest of the EPL Project corridor.

5.5.1.4.4.7 Baker

Baker is a Census Designated Place located in east San Bernardino County along Interstate 15, approximately 47 miles west of the Nevada border. The town was named after Richard C. Baker, proprietor of an English food-preservative company called Redwood and Sons. Baker was a prominent investor in the Pacific Coast Borax Company in 1896 (Wilkins 1989). The town is listed on a 1912 Tonopah and Tidewater Railroad map as a station stop along the railway path that ran from Ludlow, California in San Bernardino County, up north to Goldfield, Nevada. Baker served as a railroad station stop for a span of 33 years, in an effort to support the booming mining towns along the way, until the railroad finally shut down in 1940. Baker is an important stop for travelers seeking food and fuel along Interstate 15 (Hayes 2005).

Baker is also associated with Ralph Jacobus Fairbanks (1857–1942), who was an American prospector, entrepreneur, and pioneer. Fairbanks established several towns in the Death Valley area of California, including Fairbanks Springs (1904–1905) and Shoshone (1910). R. J. "Dad" Fairbanks, as he was known to locals, built the first Standard Oil service station in the area, in Baker about 1928–1929. He was known for saving tourists and prospectors who wandered into the desert. Baker is located about 18 miles north of the EPL Project corridor.

5.5.1.4.4.8 Mountain Pass

Mountain Pass is an unincorporated community located approximately 15 miles from the Nevada and California border, bounded to the south and east by the Ivanpah Valley. The region is recognized for its contributions to the mining industry from the 1860s to the 1990s. The surrounding area near Mountain Pass has been the scene of at least three major cycles of prospecting for minerals. Mountain Pass is located about 12.5 miles north of the EPL Project corridor (Hewett 1954).

The first cycle of mining began about 1861, following the decline in discovery for gold in the western slope of the Sierra Nevada. In the early 1860s, prospectors ventured southward into California discovering silver, gold, and copper near Clark Mountain, approximately 6 miles north of Mountain Pass, launching the Clark Mountain District. For the next 25 years the district produced $5,000,000 worth of silver and was reported that at its height, the population of Clark Mountain was 500 (Hewett 1954).

High prices for copper, lead, and zinc stimulated the second cycle for prospecting during World War I (1914–1918), only to rapidly decline immediately after. By 1926, only one mine was active near Mountain Pass. After the end of World War I, leading up to the third cycle of prospecting, there were minor discoveries and little activity in the general area.

In 1949, Herbert S. Woodward, an engineer and prospector, discovered high levels of radioactive material around the southern portion of the Clark Mountain Range location (Hewett 1954). Woodward discovered that the location contained a significant amount of rare earth elements. Mining claims were sold to the Molybdenum Corporation of America in 1952, but large-scale mining did not begin until the 1960s and continued through the 1990s (Hewett 1954).

5.5.1.4.4.9 Nipton

This community got its start as a mining town named “Nippeno” in 1900 when S. (Samuel) D. (“Dunc”) Karns filed claims to the Crescent mining district. A few years later, in 1904–1905, construction crews of Nevada Senator William Clark, a Montana copper baron, connected Salt Lake City to Los Angeles by rail through the town for the San Pedro, Los Angeles and Salt Lake Railroad. The railroad designated the name of the town as “Nippeno Camp.” By 1910, the name had been changed to Nipton. It served as a hub for mining, ranching, and railroading activities through the early twentieth century and continuing into the 1950s. The post-WWII period saw Nipton emerge as a center for recreational activities, now linked to the Mojave National Preserve. Nipton is located about 2.2 miles north of the EPL Project corridor.

5.5.1.4.4.10 Ivanpah

Named for the Ivanpah Valley, the small community of Ivanpah was a railroad crossing in the desert on the San Pedro, Los Angeles & Salt Lake Railroad. At Ivanpah, the California Eastern Railway short line crossed the main line between Los Angeles and Salt Lake. In early 1902, the Nevada Southern Railway completed a 15-mile extension over the New York Mountains, past Vanderbilt, to the Ivanpah railhead. This served as the shipping point for the Copper World Mine. The AT&SF Railroad bought the Nevada Southern Railway that same year and renamed it the California Eastern Railway. At one time there was a store in the community. The store burned in 1944, resulting in the death of the couple that ran it. Ivanpah is located about 2.8 miles south of the EPL Project corridor.

5.5.1.4.4.11 Cima

Cima was a water stop and siding on the San Pedro, Los Angeles & Salt Lake Railroad. Cima was founded before the railroad arrived about 1900, when H.C. Gibson established the first store. With the arrival of the railroad in 1905, the first post office opened in the store. The location at the top of the long

Kelso-Cima grade made it a good stop for water so the railroaders could refill their boiler tanks. In later years, Cima served as a center for ranchers in the area who could pick up their mail at the post office and load cattle on the railroad. Cima is located about 1.3 miles south of the EPL Project corridor. Cima Road and the SCE Cima Substation are located in the vicinity.

5.5.1.4.4.12 Silver Lake

Silver Lake is the site of a community about 25 miles north of the EPL Project corridor. A small town once existed here along the Tonopah and Tidewater Railroad, about 6 miles north of Baker. When the railroad ceased to operate in 1940, the town was abandoned. Today, State Route 127 passes close by this location.

5.5.1.4.4.13 Mojave National Preserve

The Mojave National Preserve is located in the Mojave Desert of San Bernardino County, between Interstate 15 and Interstate 40. The EPL Project APE/API passes through the Mojave National Preserve. The preserve was established October 31, 1994, with the passage of the California Desert Protection Act by the U.S. Congress and is under the jurisdiction of the NPS. Previously, it was the East Mojave National Scenic Area under the Bureau of Land Management. At 1,600,000 acres, it is the third largest unit of the National Park System in the contiguous United States. Natural features include the Kelso Dunes, the Marl Mountains, and the Cima Dome, as well as volcanic formations such as Hole-in-the-Wall and the Cinder Cone Lava Beds. The preserve encloses Providence Mountains State Recreation Area and Mitchell Caverns Natural Preserve, which are both managed by the California Department of Parks and Recreation.

5.5.2 Research Design

The following research design is a high-level overview of expected resource types and research topics, identified through background research, which is intended to inform site recording and NRHP and California Register of Historical Resources (CRHR) eligibility recommendations. As the project crosses several distinct geographies with variations in culture history, history of archaeological analysis, and present-day management approaches, this represents an attempt at synthesis that is aimed at maximum utility in site recording and analysis. It is likely that resource types and topics will be encountered during the study that do not fit neatly into the categories below; these will be addressed during discovery and subsequent analysis.

5.5.2.1 Prehistoric Research Domains

5.5.2.1.1 Prehistoric Site Types

This analysis classifies all resources into non-overlapping site categories, followed by an analysis of the characteristics that would contribute to NRHP or CRHR eligibility analysis. The prehistoric site types that are most likely to be identified during the current survey include: Lithic scatter; Ceramic scatter; Artifact scatter; Bedrock milling station; Quarry; Rock art; Trail; Rock feature; Rock shelter; Temporary camp; and Habitation. Project work conducted within federally managed lands deferred to locally accepted resource definitions, including what constitutes a site, and specific site type definitions. For example, on BLM-managed lands, a site is be defined as 10 artifacts within a 10 × 10–m area bounded by a 30-m buffer of no artifacts. For private lands, the convention of the nearest federally managed land was used to ensure consistent data collection.

5.5.2.2 Prehistoric Research Topics

Research questions focused to solve problems is the foundation of proper science, and one of the most fundamental questions archaeologists must ask ourselves and of the recoverable data is this: What will the research tell us that we did not already know? The review of previous research identified a wide range of prehistoric research topics that pertain to the EPL Project vicinity. These topics fall under three generalized domains: chronology, land use pattern change, and technology and exchange. These domains and corresponding topics are discussed in the sections that follow and by no means represent the full range of research interests or opportunities for the resources within the EPL Project APE/API. Rather, the examples were chosen to demonstrate the nature and direction of current research and were focused on those having clear linkages to data available prior to the survey of the EPL Project APE/API. Although not exhaustive, these topics serve as a starting point for making informed decisions regarding the NRHP/CRHR eligibility of sites within the EPL Project APE/API.

5.5.2.2.1 Chronology

Who and when are probably the two most basic questions asked by archaeologists, but are nonetheless critical avenues of research upon which other questions can be asked and addressed. The scientific reconstruction of cultural development and events is dependent upon temporal control. Without a means of establishing chronological sequences, archaeologists are less able to make correlations between the material remains and cultural development through time. Ezzo (1996:131) argues that the "lack of temporal controls severely limits the investigator's ability to generate meaningful inferences from a database...with any degree of analytical confidence." Archaeologists have developed an array of techniques, both relative and absolute, to date when sites were occupied.

Chronometric data can be obtained from a variety of sources, including artifact type chronologically related to specific cultural periods (e.g., projectile points, beads, and ceramics), physically dateable artifacts (e.g., obsidian hydration analysis or x-ray fluorescence analysis and luminescence dating of ceramic artifacts), and organic remains (e.g., bone, shell, fiber, loose charcoal) dateable through chronometric assay (e.g., radiocarbon or stable isotope analysis). Dateable artifacts can occur in surface and subsurface contexts. Dateable organic remains acquired from midden deposits or from buried features like hearths are most likely to provide reliable chronometric assay results. Sites that have dateable items or remains can be placed at least tentatively within an existing temporal framework, be it local or regional, and used to compare and contrast temporal adaptive patterns in human behavior and can help refine the understanding of long-and short-term changes in prehistoric human adaptation and assist with the establishment of accurate regional chronologies.

Given the importance of chronological data to all archaeological interpretation, it was critical to document the presence of any temporally diagnostic or potentially diagnostic artifacts or remains within the study area. Sites that can contribute valuable chronological data may be recommended eligible for either the NRHP or the CRHR under Criterion D/4, for their potential to yield information important in prehistory.

Research in the nearby Great Basin has established an accurate projectile point chronology from stratified contexts supported by radiocarbon dates (Thomas 1983), but there is currently a paucity of similar data from southern California in general and the Mojave Desert in particular (e.g., Sutton 1996; Sutton et al. 2007). Improving the accuracy of projectile point chronology is a dominant question in the research area. Archaeological finds in the central and eastern Mojave Desert have been found along paleoshores of pluvial lakes and have been dated based on the association with lake highstands. However, Sutton (1996) notes that the assumption that the artifacts are in primary context at these shores is problematic.
In addition, there have been multiple claims of pre-Clovis occupations of the Mojave Desert (Budinger

1992; Davis 1967, 1969, 1974, 1978; Leakey et al. 1968, 1970; Simpson 1958, 1960). With burgeoning evidence of pre-Clovis occupations of the New World (e.g., Dillehay and Collins 1988; Jenkins et al. 2012; Meltzer et al. 1997), these claims cannot be as easily dismissed as they once were and should be considered a viable research topic.

5.5.2.2.1.1 Projectile Point Chronology

Projectile points are often used to date archaeological sites. Projectile point forms are known to change over time and archaeologists have used radiocarbon dating of stratified deposits containing projectile points to create date ranges for specific projectile point types; however, many California desert sites do not have stratified deposits and have not been directly dated. The assumption that dates for projectile points are consistent over wide ranges of space also requires further examination. Few direct radiocarbon dates exist associated with projectile points in the regions surrounding the project (e.g., Altschul et al. 1989:20; Sutton 1996). Increasing the precision and accuracy of projectile point chronologies is an important research topic in the California deserts.

Gilreath and Hildebrandt's (1995, 1997) analyses of projectile point hydration data show that the traditional chronological projectile point sequence for the Great Basin is accurate back to approximately 3500 B.P. (see Bettinger and Taylor 1974). Using Basgall's (1991a) Coso hydration rate, thin Elko points (less than 0.25-inch [6.5-mm] maximum thickness) correctly fall within the Newberry period (3500–1350 B.P.); Rose Spring points occur within the Haiwee period (1350–650 B.P.), and Desert-series points date to the Marana period (after 650 B.P.). Early Elko forms have been recognized at Airport Lake (within NAWS China Lake) by Hildebrandt and Jones (1997) and at the Stahl Site (near Little Lake, also within NAWS China Lake) by Schroth (1994). Some gains in regional projectile point chronology have been made by Basgall et al. (1995), who defined the Fish Slough series, a separate type of notched dart point used in the Early Holocene; however, a great deal of work remains to be done.

The refinement of projectile point chronologies is especially difficult in the Mojave Desert due to the absence of deep stratified deposits and co-occurrence of multiple time periods on deflated surfaces. For instance, despite being interpreted as distinct cultural complexes in the central Mojave Desert, the Lake Mohave Complex and the Pinto Complex appear to co-occur at many sites with overlapping radiometric and obsidian hydration dates (Sutton et al. 2007). As Altschul et al. (1989:20) note, "the character and dating of the transition from the Lake Mojave to the Pinto period is probably the most vexing chronological problem in the region."

5.5.2.2.1.2 Ceramic Chronology

Currently, most archaeologists, specifically ceramicists, turn to the works of Allison (2008), Baldwin (1950), Colton (1938, 1939, 1945, 1952, 1956, 1958), Colton and Hargrave (1937), Griset (1990), Harner (1955), Hayden (1994), Hays-Gilpin and Lyneis (2008), Lyneis (1982, 1988, 1992, 1995, 1997a, 1997b, 2008), McGuire and Schiffer (1982), Rogers (1936, 1939, 1940, 1945a, 1945b, 1945c, 1966), Schaefer (1994, 1995), Seymour (1995, 1997), Van Camp (1979), and Waters (1980, 1982, 1983a, 1983b) as well as many others to type ceramics found within the California deserts. Despite all these works, researchers know that in terms of the California deserts the current ceramic typologies and chronologies are best characterized as works in progress, and hence ceramic chronology remains an important research topic (Dillion and Boxt 2011a, 2011b, 2012). Pottery vessels were used for storage, processing, and transferring of food stuffs, and to contain other items such as minerals; these vessels are one of the most useful artifact classes for archaeologists. Hence, having an accurate chronology specific to the California deserts is important to our understanding of prehistory.

Of the various ceramic wares found within the California desert regions, the one specific to the EPL Project alignment is Owens Valley Brown Ware, which is considered a temporal marker of the Marana period (A.D. 1300 to mid-1800s) (Eerkens et al. 1999). Moratto (2011) provides a summary of the research to data on the ware. Of interest is the recent work by Pierce (2011), which has defined two temporal periods for the ceramic ware: A.D. 1300–1750 and A.D. 1750 into the 1850s. Moratto found that the ware was traded with other Native American groups well beyond Owens Valley and that clay sources came from the Nevada National Security Site (Pierce 2011:90–91). Other ceramic ware which may be found and for which there may be an opportunity for chronological refinement are buff and gray ware ceramics, both of which can be found at sites in the eastern California desert region. Like projectile points, discussed above, ceramics offer another avenue of study when it comes to chronology but present some of the same issues in the Mojave Desert due to the absence of deep stratified deposits and co-occurrence of multiple time periods on deflated surfaces.

Directly dating ceramics has been a challenge for many years, and for the most part, archaeologists have relied upon cross-dating, using radiocarbon dates obtained from a hearth that contained ceramic sherds, or having the luck to find a sherd or vessel with food remains or other carbon-based materials adhering to it that can be dated. However, fired ceramic objects can be directly dated though the use of thermoluminescence dating (TL) or optically stimulated luminescence (OSL) dating. This method can be applied to two classes of material: those heated to at least 500 degrees Celsius, and buried sediments. There are certain requirements for the dating process, and TL/OSL will not work for all ceramic objects, and it should also be kept in mind that the method can be destructive. Additionally, of note is the work of scientists in the United Kingdom, who have developed a new dating method by measuring moisture recombination in ceramics (Brindley 2009). This method involves refiring the ceramic object to dry it out; then the difference in weight is precisely measured. The mineral clay composition is monitored to determine the rate at which it absorbs water, allowing the age to determined. Hence, even with a lack of deeply stratified deposits, this class of prehistoric artifacts offers a unique opportunity to be used in chronology building.

5.5.2.2.2 **Land Use Pattern Change**

Several interesting topics fall under this broad domain, and they are best organized according to the following chronological parameters: Terminal Pleistocene–Early Holocene occupation of Mojave Desert sites, Early and Middle Holocene adaptive change, and Late Holocene subsistence intensification. Subsistence is one of the most basic of human needs having a direct effect on human behavior. Prehistoric subsistence procurement activities consist of any number of variables including site location in relation to landform, water supply, and raw materials; site size; site function; activities conducted; and duration of occupation. Material culture, such as lithic and ground stone tools, ceramics, and faunal and botanical remains, provide data representative of subsistence-related activities and strategies.

The project area forms a part of larger prehistoric settlement once present throughout the California desert regions. Information on the nature and intensity of prehistoric use of the project area, including the types of sites present, site density, and environmental context, will contribute to a more complete picture of land use patterns and how they changed through time in California. Sites that can offer valuable data concerning prehistoric land use patterns and subsistent strategies may be recommended eligible for either the NRHP or the CRHR under Criterion D/4.

5.5.2.2.2.1 Evidence for Terminal Pleistocene–Early Holocene Occupation

Investigations along the ancient shores of several Pleistocene-Holocene lakebeds along the EPL Project alignment have revealed evidence for the Terminal Pleistocene–Early Holocene presence of humans.

Although clear associations between extinct Pleistocene fauna and human-made stone tools have not been documented to everyone's satisfaction (see Basgall 2007a, 2007b), the potential for such an association still exists along ancient shorelines near or within the EPL Project area. Human tools and extinct Pleistocene fauna have been found together in the American Southwest and the Great Plains; however, they have not been found in clear association in California or the Great Basin regions. While most scholars agree that "the only cultural complex dating the Pleistocene that has been confidently identified in the Mojave Desert is Clovis" (Sutton et al. 2007:233), the prospect of identifying pre-Clovis deposits remains.

Calico Hills and Lake Manix are two commonly discussed potential pre-Clovis sites in California that are located near the EPL Project area. Pleistocene Lake Mohave, at the eastern end of the EPL Project area has been a locus of claims of Late Pleistocene artifacts (e.g., Davis 1967, 1969); however, it is less well known.

The Calico Hills site is located approximately 8 miles north of the EPL Project area and is managed as an Area of Critical Environmental Concern (ACEC) by the BLM. The site is located on the remnants of an alluvial fan leading to Lake Manix (Moratto 1984:41). The site was excavated by Louis Leakey and Ruth Simpson in the 1960s; Leakey was an expert on pre-human hominin stone tools in Africa and was convinced that the lithic material at the Calico Hills site was of great antiquity, based on morphological similarities to what he had identified in Africa (Leakey et al. 1968; Leakey et al. 1972). The veracity of the artifacts and dates were questioned by American archaeologists (e.g., Duvall and Venner 1979; Haynes 1969, 1973; Payen 1982). Neither the early dates for the Calico Hills site proposed by Leakey and his collaborators, nor the claims of an artifactual nature for much of the material, have been accepted by most of the archaeological community (Moratto 1984:41–48).

The EPL Project area runs through the ancient lakebed of Pleistocene Lake Mohave. Lake Mohave has yielded material dated to >11,500 years ago based on association with the paleoshore (Davis 1967). Early dates have not been readily accepted by the archaeological community; however, the archaeological community has not wholly rejected the possibility of a Pleistocene occupation of the Mojave Desert (Moratto 1984:41). As Budinger (1992:49) notes, Pleistocene lakeshore and marsh depositional environments likely have the greatest potential to yield evidence of pre-Clovis occupation and related paleoenvironmental data. Potential exists for identifying lithic material along the paleoshores of these lakes that could help elucidate our understanding of the earliest occupation of the region.

5.5.2.2.2.2 Early and Middle Holocene Adaptive Change

Another potential research issue concerning land use pattern change involves contrasting interpretations of Early and Middle Holocene adaptive change. Warren (1986) argues that people in the Mojave Desert in the Early Holocene (10,000–7000 B.P.) focused on large game and a rich assortment of lake and riparian resources. Lake Mohave in the central Mojave Desert does provide evidence of occupation during this time period, even with the lack of earlier dates (Sutton et al. 2007). Between 8000 and 7000 B.P., lowland lakes and streams began to dry up and large-game populations became limited to a few isolated locations. For example, Owens Lake's last sustained highstand was at approximately 8800 B.P., which was followed by what is known as the mid-Holocene Xerithermic period, characterized by nearly 5,000 years of drought (McGuire et al. 2015:26). In response to these changes, Warren (1986) asserts that settlements shifted to upland settings where ephemeral lakes and streams still existed, and drier lowlands were effectively abandoned. This land use change was also correlated with changes in assemblage content and diversity (the resulting assemblage is defined as the Pinto Complex), including the increased use of milling equipment, which was thought to indicate a greater reliance on small-seed resources. Warren (1986) contends that by the height of the Middle Holocene climatic optimum (ca. 6500–4000 B.P.), Pinto Complex sites decreased in frequency and were restricted to places where springs still flowed.

There is currently debate whether the central and eastern Mojave Desert was abandoned between the period of the Lake Mojave Complex during the Early Holocene and the Middle Holocene Pinto Complex (Altschul et al. 1989:21–22) and abandoned again between the Middle and Late Holocene (Sutton et al. 2007:404). An alternative perspective provided by Basgall and Hall (1992) suggests that Early Holocene environments were not characterized by perennial rivers and lakes, but by a variety of springs and the intermittent filling of playa lakes. Basgall and Hall also argue that Lake Mojave sites were located in a wider range of habitats and produced tool and faunal assemblages indicative of a more generalized adaptation than proposed by Warren (1986).

During the Middle Holocene, a striking increase in the frequency of milling equipment is seen, signifying a greater focus on small-seed resources (Basgall and Hall 1992; Warren and Crabtree1986). Site locations continued to cross a wide range of habitats, but in contrast to the ideas of Warren and Crabtree (1986), they were not necessarily located next to springs. Moreover, Basgall and Hall (1992) do not recognize a Middle Holocene depopulation of the desert. Much of the EPL Project is within arid land where questions of Middle Holocene abandonment can be tested. Sites in this area that may yield reliable absolute dates could help elucidate land use and population patterns.

The Middle Holocene also saw the development of ritual behavior likely associated with the hunting of large game, specifically bighorn sheep. Split twig figurines found in Newberry Cave in the central Mojave Desert are associated with bighorn sheep hunting ritual behavior (Hildebrandt and McGuire 2012; Sutton 1996:234). Hildebrandt and McGuire (2002) associate the big game hunting and ritual behavior with costly signaling theory.

Costly signaling theory attempts to explain how seemingly inefficient (or costly) types of behavior can evolve through natural selection, as long as these behaviors communicate a series of underlying qualities that are of interest to observers. Signalers display (communicate) their intrinsic qualities, while the pay-off to the observer derives from the information inferred from the signal - he or she should be able to evaluate signaler qualities as a rival, mate, or ally by attending to the signal rather than by other more expensive means (e.g., direct competition, trial-and-error)... In this conception, meat can be a medium of communication through which the hunter transmits information to potential mates, allies, and competitors (McGuire and Hildebrandt 2005:698).

The concurrent rise of large game hunting and small seed processing in the Middle Holocene has led the human behavior ecologists in the Mojave Desert archaeological community to discuss the relative merits of the different provisioning activities within a discussion of gendered division of labor (e.g., Hildebrandt and McGuire 2002). It appears that the small seed and small game provisioning conducted primarily by women supported the riskier large game hunting by men (e.g., Zeanah 2004). Large game hunting by men resulted in increased social attention, improved access to alliance networks including in the obsidian trade and increased sexual opportunities for the successful hunter (McGuire and Hildebrandt 2005).

Rock art associated with the large game hunting appears in much of the Mojave Desert during the Middle Holocene (McGuire and Hildebrandt 2002). Petroglyphs and rockshelters have been recorded in the study area, suggesting that these types of resources may be identified during the survey, potentially adding to the understanding of this gender behavior in the Mojave Desert and potentially clarify gender roles in relation to resource acquisition.

5.5.2.2.2.3 Late Holocene Economic Transformations

Various researchers have suggested that, as population densities increased over time near the EPL Project area, local prehistoric populations were required to increase subsistence production per unit of land.

Bettinger and Baumhoff (1982) think this problem became acute at approximately 1000 B.P., resulting in the more intensive and generalized use of habitat zones previously used for only specialized purposes. Bettinger (1991) and McGuire (1981) have argued that upland areas in the Mojave Desert were used essentially for specialized hunting or other specialized resource procurement until relatively late in time (ca. 1000 B.P.), when seasonal villages were established, and entire families exploited a much wider range of resources (including piñon). The EPL Project area is immediately adjacent to these areas.

Gilreath and Hildebrandt (1997) have found similar changes in land use within the Coso Volcanic Field. Prior to 1000 B.P., use of the area was largely restricted to the acquisition of obsidian; after 1000 B.P., subsistence production became the primary focus, particularly the exploitation of a variety of small-seed resources. Curiously, this intensification coincided with sharp declines in large-scale obsidian quarrying and the discontinuance of the Coso rock art tradition, and a decline in the accumulation of substantial middens indicative of habitation sites in favor of more dispersed camps and processing stations (McGuire et al. 2015:38–39). If split twig figurines found at Newberry Cave in the central Mojave Desert are related to the same large game hunting ritual behavior seen in the Coso rock art, as Hildebrandt and McGuire (2012) propose, a similar change in land use patterns may be reflected in the central Mojave, where the EPL Project is located.

Cultural developments south of the Mojave River and Providence Mountains diverge from those in the northern area during this period, reflecting influence from Hakataya from along the lower Colorado River, and that of the Ancestral Puebloan as far west as Halloran Spring (Blair 1985; Blair and Winslow 2004; Leonard and Drover 1980; Rogers 1929; Warren 1980) and the Cronise Basin in California (Larson 1981; Rogers 1929). Overall, the nature of the Hakataya and Ancestral Puebloan presence in the Mojave Desert is poorly understood and warrants research. In the remainder of the Mojave Desert, sites seem to exhibit general continuity with the Early and Middle Holocene adaptive pattern. One of the most conspicuous changes from the earlier period is the reduction in size of projectile points. Rose Spring and Cottonwood series points dominate assemblages (Warren and Crabtree 1986).

Previous studies have identified increased use of marginal habitats late in time (see Bouey and Mikkelsen 1989; Gilreath and Hildebrandt 1997), and future studies should continue this line of research. Future investigations should also focus on the degree to which intensification led to increased predictability of settlement locations during the annual subsistence-settlement cycle, and whether this facilitated the development of regular exchange relationships.

The frequency of Newberry period hydration readings increases at sites throughout the western Mojave (Allen 1986; Whitley et al. 1988; Yohe 1992), the Kern Plateau (Garfinkel et al. 1984; McGuire and Garfinkel 1980), the western slope of the southern Sierra (Dillon 1988; Gehr 1981, 1988), and various locations within Ventura and Los Angeles counties. These trends suggest that most Late Newberry production surpluses were ultimately consumed by the relatively large population centers of coastal southern California. Whether these transformations were caused by climate change (the Medieval Climatic Anomaly), the introduction of bow-and-arrow technology, or other factors is currently an open question (McGuire et al. 2015:39–40). Large-scale surveys like the current project have the potential to contribute to our understanding of these changes by identifying temporally discrete sites in the centuries immediately before and after 1000 B.P. whose data sets include subsistence-related artifacts and floral and faunal remains.

Combined with chronological data discussed above, this research domain can address our understanding of prehistoric adaptive changes through time. Sites that can offer valuable data concerning the research

domain may be recommended eligible for either the NRHP or the CRHR under Criterion D/4, for their potential to yield information important in prehistory.

5.5.2.2.3 Technology and Exchange

The Mojave Desert is an ideal laboratory for the study of technology and exchange due to its long occupation and ample supply of lithic and ceramic artifacts that are both chronologically sensitive and traceable to their points of origin. Changing patterns of resource use and technological advancements such as the adoption of the bow and arrow or pottery are evident in the region's archaeological record, and the subject of longstanding problem-oriented research.

Late in prehistory there is the establishment of Ancestral Puebloan communities along the Virgin and Muddy rivers in Nevada (Lyneis 1995; Shutler 1961; Sutton 1996:237; Winslow 2003, 2003a, 2009). While this is well outside of the EPL Project area, trade and exchange with these communities and others throughout the Mojave Desert and the surrounding regions to the north, south, east, and west resulted in an increase in the trade and exchange of goods such as ceramics, shell, turquoise, salt, textiles, and other goods, and established people living along the Mojave River as trade intermediaries (Davis 1961; Heizer 1941, 1978; Rogers 1945a:175; Sample 1950). This was facilitated by prehistoric trails found throughout the Mojave Desert and surrounding regions (Caltrans 2016; Winslow et al. 2019); of note is a trail identified by James (1987, 1996) in the Afton Canyon area, which is adjacent to the EPL Project area, and the Mojave River Trail, which intersects the EPL Project area. Prehistoric sites identified within the EPL Project area have the potential to provide information regarding any number of technologies, trade, exchange, and migration throughout the California desert region as well as from surrounding regions.

5.5.2.2.3.1 Obsidian Use and Exchange

The Coso volcanic fields are a large source of high-quality obsidian, and collectively represent a major source for obsidian artifacts for central and southern California through much of prehistory. For example, artifacts chemically traced to Coso were brought to the Channel Islands as early as 11,750 B.P. and represent nearly 94 percent of the obsidian found in island assemblages throughout prehistory (Gill et al. 2019:11–12). Coso obsidian was presumably exchanged for coastal items like marine shell beads and ornaments as a part of the Southern California Exchange Network, perhaps as well as other imported items that are found in the area such as non-local pottery, steatite beads, slate pendants, and, rarely, turquoise items (McGuire et al. 2015:45). Non-local obsidian became more common in the southern Owens Valley after 650 B.P., but also became more heterogeneous, suggesting increasing household focus on internal subsistence and exchange pursuits, rather than village-scale trade (Eerkens and Spurling 2008). The spread of Coso obsidian observed throughout the project area may answer some research questions regarding this exchange.

Research by Gilreath and Hildebrandt (1997) suggests that use and control of the Coso quarries changed over time, beginning with short-term use of lag deposits, shifting to intensive use of primary flows between 2300 and 1275 B.P., coming under strong local control between 1275 and 800 B.P., and dropping off precipitously thereafter. A variety of reasons have been posited for this decline, including disruption of long-distance trade due to increased sedentism and territoriality, changes in demand for obsidian due to the introduction of the bow and arrow (i.e., less material was needed to make arrows as opposed to darts). It is further argued that older (often Newberry period) biface production sites could have supplied people in the later periods with obsidian, eliminating the need for travel to a quarry, and perhaps minimizing the need for trade. If this toolstone procurement strategy occurred, then it should be possible to observe multiple hydration rinds on individual tools: one rind from the original surface and one from the tool's more recent modification. This might best be tested on simple flake tools as large

portions of the original flake blank often remain intact in these types of artifacts. Documenting this pattern would help improve methods for identifying Late Holocene sites. The behavioral pattern itself is of interest, as it may help explain the decline in obsidian quarry production, a major shift in the regional archaeological record. A recent study in the Antelope Valley examined this question and found that the perceived pattern of declining obsidian use during the Late Holocene was a product of sampling bias and faulty data organization, rather than a genuine cultural trend (Bark 2017). Examining whether that is the case in the desert areas east of the Antelope Valley would be a productive region of research.

5.5.2.2.3.2 Diffusion of Pottery Innovation

Studies undertaken in the late twentieth century have made a case for local manufacture of ceramics based on chemical sourcing analysis, particularly in the northern Mojave (Arnold et al. 2004:46). According to recent research by using nearly 100 luminescence dates (Eerkens and Lipo 2014), western Mojave populations experimented with alternative pottery forms in the Late Holocene, making this an interesting case for studies of innovation and diffusion. Direct-rimmed ceramic pottery first appeared in the Southern Owens Valley around 950 B.P., while pottery forms using recurved rims appeared in the China Lake area to the east about 600 B.P. Direct-rimmed forms diffused to China Lake and Death Valley by 400 B.P., apparently resulting in the rapid abandonment of the recurved rim technology in favor of direct rims. Ceramics identified during the current survey, particularly rim sherds from well-dated sites, may be used to validate or refute the conclusions of the Eerkens and Lipo (2014) study over a broader geography, as well as in comparison with other ceramic wares commonly found in the California deserts, such Ancestral Puebloan sherds commonly found at sites in the Cronese Lake area, sites within the Mojave National Preserve, and sites within the Halloran Summit and Spring. Additionally, buff ware ceramics are common throughout much of the Mojave Desert region.

As discussed earlier, ceramics are a useful and temporally diagnostic artifact class, and their study is only limited by the questions asked by the researcher, whether those are questions concerning ceramic technologies, chronology, or in this case distribution and trade and exchange; no matter the sample size, the artifact class can contribute knowledge to our understanding of prehistory. In the case of the current project, an understanding of the distribution of the ceramic wares identified in the project area may have the potential of addressing many of the prehistoric research domains.

There is potential for exotic ceramic types to be identified in the EPL Project area along the Mojave River. Some of these exotic types could have ultimately come from adjacent regions by such groups as Ancestral Puebloans (e.g., Anasazi). Sutton (1996:239) notes the presence of "apparent Anasazi materials" along the Mojave River in the Cronese Lakes area, which is adjacent to the EPL Project area. There is debate over whether this material represents an occupation of the area by Anasazi or trade items. Additional finds could elucidate whether Anasazi populations were directly or indirectly influencing pottery production in the Mojave Desert.

Combined with the previous prehistoric research domains, an understanding of prehistoric ceramic technologies and exchange will only enhance our understanding and knowledge of prehistoric lifeways. Hence, sites that can offer valuable data concerning the research domain may be recommended eligible for either the NRHP or the CRHR under Criterion D/4, for their potential to yield information important in prehistory.

5.5.2.3 Historic Research Domains

5.5.2.3.1 Historical Resource Types

Historical resources are defined as any building, structure, object, site, or isolate at least 50 years of age, or less than 50 years old with exceptional significance, or having Native American religious significance. Certain resource types may be associated with specific ethnic groups within the historic period (e.g., unpaved trails and Spanish or Mexican explorers, wagon roads and early American settlers, railroad lines and Chinese peoples). Historical resource attributes may include, but are not limited to, the following:

- Buildings and structures of residential, commercial, industrial, and government use
- Unpaved and paved roads, including wagon trails, auto highways, any transportation or travel pathways, historic period trails, mining routes, or other
- Water and electrical power conveyance systems, including canals and transmission lines
- Native American sacred sites or other significant ethnic sites (of any age)
- Trash pits, privies, wells, and associated artifacts, surface dumps, and artifact scatters
- Isolated artifacts or isolated clusters of artifacts (metal cans, glass bottles, ceramic vessels, etc.)

5.5.3 Cultural Resources Methods

5.5.3.1 Archaeological Methods

5.5.3.1.1 Records Search Methods for Archaeological Sites

SCE consultant SWCA Environmental Consultants (SWCA) reviewed resource records and previous studies located within 0.5 mile (0.8 km) of the EPL Project alignment. This information was obtained from multiple sources. SCE contractors Arcadis Design and Consultancy (Arcadis), and Material Culture Consulting, LLC (MCC) under contract to Arcadis, conducted the initial records searches of the California Historical Resources Information System (CHRIS) in April 2017 and June 2018 at the South Central Coastal Information Center (SCCIC), located at California State University, Fullerton, which houses records for San Bernardino County, California. A supplemental records search was conducted by SWCA in October 2022 at the SCCIC for the portions of the revised project area that are outside of the previously conducted records search areas.

SWCA conducted a supplemental records search in April 2019 using SCE's internal ArcGIS Online (AGOL), which contains results from the CHRIS Information Centers (excluding San Bernardino County) with which SCE maintains a subscription, and SCE's Environmental Resources Management (ERM) Archaeology Data Viewer, a web-based platform administered through ESRI AGOL.

The ERM Data Viewer is the centralized location for reviewing SCE's ERM project data in relation to other SCE electrical assets for analysis and project planning. The ERM Data Viewer includes geographic information system (GIS) data and copies of records from the CHRIS, various state and federal agencies, and recent SCE projects. This is an OHP-approved records search for the purposes of pre-field research and project planning. Under the terms of the subscription, SCE's CHRIS Access and Use Agreement, and the California OHP's Electronic Data Subscription Standard, SCE is permitted to maintain these data within an AGOL database and perform internal record searches using subscription datasets and share said data with authorized and allowable users. SCE's AGOL database also maintains GIS files for projects conducted on SCE's behalf.

For the Nevada portion of the EPL Project, an archaeological literature review was conducted in order to identify previous cultural resource projects and previously recorded archaeological sites within 1 mile

(1.6 km) of the APE. The search included the review of cultural resource files from the Nevada Cultural Resources Inventory System (NVCRIS). SWCA also reviewed General Land Office plat maps available online through the BLM Nevada State Office, historical topographic quadrangles available online through the U.S. Geological Survey, and historical county highway maps available from Nevada Department of Transportation. SWCA archaeologist Mary Ann Vicari performed the NVCRIS search in March 2020, under the authority of Nevada State Antiquities Permit No. 248. Ms. Vicari performed the historical maps review in March 2020.

5.5.3.1.2 Record Search Methods for Native American Resources

The Native American Heritage Commission (NAHC) maintains two databases to assist cultural resources specialists in identifying cultural resources of concern to California Native Americans. SWCA contacted the NAHC requesting a Sacred Lands File search as well as contact information for Native American groups or individuals who may have concerns about cultural resources in the project APE/API. SWCA prepared and emailed a request letter to the NAHC in July 2020. The NAHC responded to the request in a letter dated July 15, 2020, that was received via email. The results of the Sacred Lands File search were positive, which means there are lands that are considered sacred to Native Americans within the APE/API. In addition to this finding, the NAHC attached a list of 10 individual Native American groups or individuals that are culturally affiliated with the EPL Project area. The results of the NAHC Sacred Lands File search are on file with SWCA and can be provided to the CPUC and BLM upon request. The as the Federal Lead Agency, the BLM will conduct government-to-government consultation with Native American tribes in California and Nevada regarding the proposed undertaking.

5.5.3.1.3 Survey Methods for Archaeological Sites

SWCA conducted a Class III pedestrian survey as defined by the California BLM *Guidelines for a Cultural Resources Inventory* (BLM 2009:2). The BLM Manual defines three types of Class III survey coverage:

1. Complete – Consists of systematic transects spaced at 15 m.
2. General – Conditions (e.g., steep slopes, talus slopes, dense brush) require wider transect spacing, defined as 30- to 60-m spacing.
3. Cursory – Systematic transect spacing is precluded by conditions; unsystematic surveys are employed in areas unsafe for walking. This includes slopes that exceed 30 degrees or are unsafe for walking for other reasons.

SWCA tracked the survey type used for the entire APE/API with the goal being a complete pedestrian survey. The survey was conducted using equally spaced parallel transects with an average width of 15 m, except when wider spacing was necessitated by hazardous topography, excessively dense vegetation, or other physical barriers. For areas not subject to complete pedestrian survey, the GPS location was marked and labeled as such, and photographs were taken of those areas. Transect spacing was reduced where necessary to facilitate the recording of features and boundaries within sites with dense vegetation (or other ground cover that limited visibility).

A GPS receiver with submeter accuracy and topographic maps were used to locate previously recorded sites and APE/API boundaries and to maintain transect accuracy. Other field data were recorded on digital forms using Samsung computer tablets with Android operating systems. Every field crew maintained a complete set of the standard field forms on paper in their vehicle in case of equipment failure.

SWCA did not survey portions of the EPL Project area where a previous survey assessed as adequate was conducted. Studies with adequate survey coverage are defined as those that occurred within the last 10 years and included a previous data review, as well as a description of survey methodology, description of identified cultural resources (including site record forms), survey coverage and cultural resource maps, photographs, and the surveys themselves were conducted using 15-m transects or less. Of the previous studies conducted within the Direct APE/API, five demonstrate industry-standard field methods and were relied upon to determine which areas of the APE/API did not require additional survey. These previous adequate studies cover a total of 851 acres of the APE/API.

During the intensive pedestrian survey, SWCA examined the ground surface for the presence of prehistoric artifacts (e.g., flaked stone tools, tool-making debris, stone milling tools, ceramics), historic-era artifacts (e.g., metal, glass, ceramics), sediment discoloration that might indicate the presence of a cultural midden, and depressions and other features that might have indicated a former locus of human activity (e.g., concentrations of fire-affected rock, charcoal-stained soil, post holes, foundations). In areas of heavy vegetation or other ground cover limiting visibility, special attention was paid to spoils piles from rodent and insect burrows, erosional cuts, roads, and other disturbances exposing the ground surface. No subsurface testing took place or was proposed during the survey.

SWCA collected all data necessary on newly identified and previously recorded resources to complete the appropriate State of California Department of Parks and Recreation (DPR) Series 523 forms. All previously recorded sites within the APE/API were field checked to confirm location, condition, spatial extent, and site characteristics compared with those in existing site records. SWCA updated all previously recorded sites whose most recent update was more than 10 years older than the date of survey and when a significant difference was identified during the field check as compared to the existing site record. Sites that were initially recorded more than 10 years prior to SWCA's revisit and appeared identical in condition received minimal updates using a Continuation Sheet only. Resources that were initially recorded or updated in the 10 years before the survey that exhibited no discrepancies when compared with existing records were not updated. Previously recorded isolated finds were not updated unless they met project specifications for archaeological sites; in such cases, the resources were updated as sites, with full sets of DPR forms.

SWCA's on-site field director tracked each survey crew's daily progress, including the number of sites revisited and the number of newly identified resources. In addition, each survey crew maintained a daily log of field conditions, ground visibility, and any difficulty in traversing the terrain that may have reduced survey coverage or hindered resource identification. Ground surface visibility was rated as poor (0–25 percent), fair (26–50 percent), good (51–75 percent), or excellent (76–100 percent).

For the Nevada portion of the project, the Class III cultural resources survey followed all BLM guidelines for the identification, recording, and evaluation of cultural resources (Vicari et al. 2023). The 143-acre inventory area was surveyed in accordance with BLM Intensive Inventory Standards (BLM Nevada State Office 2019). Fieldwork was conducted from March 31–April 3 and April 6–9, 2020.

Sites and isolates were recorded in accordance with guidelines designated by the BLM Nevada State Office (2019). SWCA employed the following definition of a site, based on the Nevada BLM definition.

Sites should contain remains of past human activity that are at least 50 years old and should consist of one or more of the following:

1. At least two artifacts of a single class (e.g., two chipped stone flakes) in association within a 30–square meter area, except when both pieces appear to originate from a single source (e.g., one ceramic pot, one glass bottle)
2. Any historic cultural feature identified on a map
3. One or more archaeological features in temporal association with any number of artifacts
4. Two or more temporally associated archaeological features without artifacts

Isolates are defined as the following:

1. A single feature unassociated with other features or artifacts scatters that are undatable
2. An isolated or unassociated feature is considered single and unassociated when separated by 100 feet (30 m) or more from any other feature or artifact

Sites were recorded in the field using Intermountain Antiquities Computer System (IMACS) site forms. All sites were evaluated for eligibility for the NRHP. Evaluations were based on the historic context presented above.

5.5.3.1.4 National Register and California Register Evaluations for Archaeological Sites

When possible, based on surface evidence and geoarchaeological analysis, all identified sites were evaluated according to all four of the NRHP and CRHR criteria. No subsurface investigation of cultural resources was undertaken during the Class III survey. Therefore, recommendations for NRHP and CRHR eligibility were based only on surface manifestations of features and visible artifact assemblages. SWCA recommended additional work for any sites requiring subsurface testing or archival research to support an evaluation.

5.5.3.2 Built Environment Methods

For the purposes of differentiating the scope of Class III cultural resources work between the Class III Report and the Historic Built Environment Report (HBER), the historic-era built environment is defined to include any building, structure, built object, or property improvement; human-made road or circulation route; and human-made park, open space, or other scenic location which could be regarded as a designed cultural landscape. This definition includes but is not limited to single- and multifamily dwellings, commercial buildings, warehouses and other industrial and utilitarian structures, powerhouses and substations, electrical transmission lines, roads and highways, water conveyance channels and holding features, walls, railroad tracks/lines with associated infrastructure, on-site or off-site advertising signage, and agricultural or homestead properties with intact or remnant buildings, structures, and animal husbandry and containment structures.

5.5.3.2.1 Records Search Methods for the Built Environment

In advance of the field survey effort, Urbana Preservation & Planning, LLC (Urbana) prepared a desktop survey to identify all built environment cultural resources in the vicinity of the EPL Project locations. Desktop survey included use of current aerial imagery (obtained from Google Earth Professional) review of historical aerial imagery, ca. 1974–1975 (obtained from the United States Geological Survey Earth Explorer database), and San Bernardino County Assessor's Office Property Information System along with other real estate databases. The year-built data were derived for all observed resources using these cited sources. The list of observed cultural resources was then sorted into "historic-era" (prior to 1974) and "contemporary-period" (after 1973). The locations of historic-era cultural resources were overlaid

against the proposed EPL Project corridor to identify those resources that directly intersect the project (Direct APE/API). A 0.5-mile radius was drawn around the project to establish the Indirect APE/API.

Research sources used to inform eligibility evaluations included contextual information and imagery from the Online Archive of California, the Mojave River Valley Museum, United States census records, United States Geological Survey, the BLM General Land Office online database, digitized copies of the *San Bernardino Sun*, the San Bernardino County Assessor Property Information Management System, and the San Bernardino County Assessor Grantor-Grantee Index. Historic-era maps played a key role in understanding the history of the area and to determine the age of paved and unpaved roads that intersect with the APE/API. Map types reviewed include historical USGS topographical maps and BLM General Land Office plat maps for the townships associated with the proposed project area. Lastly, existing cultural resource management reports and context statements were used in this study where overlapping themes and survey locations exist. References for historical information developed for individual cultural resources are included in the DPR 523 series forms.

5.5.3.2.2 Field Survey Methods for the Built Environment

Field survey activities were completed in May 2020. All buildings, structures, site features, and view corridors within and surrounding the APE/API were photographed for further study in the HBER. Notes were compiled on the existing conditions, architectural features, and observed modifications for use in DPR 523 series forms. Supplemental observation of buildings and structures were completed as part of post-processing.

5.5.3.2.3 National Register and California Register Evaluations for the Built Environment

Each built environment property was evaluated under the eligibility criteria of the NRHP, CRHR, and local registers. A CRHR status code was assigned to each property to indicate significance findings and eligibility conclusions. Contextual and property-specific research informed Urbana's eligibility findings, with the historical narrative and contexts included in the HBER.

5.5.4 Cultural Resources Results

5.5.4.1 Records Search Results for Archaeological Sites

For the California portion of the project, SWCA reviewed the records search results from a 0.5-mile (0.8-km) buffer around the Direct APE/API. Tables that document the results of this effort are provided in the Work Plan (Martinez and Lisboa 2019) and resulting Class III report (Martinez et al. 2023). Within Nevada, the archaeological literature review was conducted for the APE and a 1-mile (1.6-km) buffer, which is consistent with the requirements of the Nevada BLM. Results of the research search are summarized in the sections that follow.

5.5.4.2 Previously Conducted Cultural Resource Studies within the Direct APE/API

Within California, approximately 126.5 acres, or 10.1 percent of the APE/API, was found to have been subject to survey in the past 10 years. Two hundred ninety-nine intensive surveys, most of which are located at the extreme eastern and western ends of the project area, totaling 239.6 acres, or 19.2 percent of the APE/API, have been conducted during the last 10 years. Of these 299 intensive surveys, 33 were considered adequate surveys and no additional survey in these locations was required.

Non-intensive studies previously conducted within the Direct APE/API include one reconnaissance survey of 116.47 acres, two monitoring projects totaling 2.31 acres, and two studies categorized as

"unknown" totaling 0.34 acre. The data set includes 22 surveys with no value provided for survey type; together, these cover a total of 306.66 acres within the Direct APE/API.

Within Nevada, the archival review identified a total of 13 prior archaeological projects within 1 mile (1.6 km) of the project area, seven of which overlap with the APE. Two of these studies were conducted within the last 10 years, two are more than 10 years old, and no date information was available for three studies. In total, these studies cover a total of 4.66 acres within the Direct APE/API.

5.5.4.3 Previously Recorded Resources within the Direct APE/API

The records search for California portion of the project identified 64 previously recorded archaeological resources within or intersecting the Direct APE/API. Of these resources, 27 (42.2 percent) are historic period archaeological sites, seven (10.9 percent) are prehistoric sites, 6 (9.4 percent) are multicomponent resources, 20 (31.3 percent) are historic isolates, and four (6.3 percent) are prehistoric isolates. The majority of the previously recorded archaeological resources within the Direct APE/API (n=34, 85.0 percent) were recorded since 2013. For the Nevada portion of the project, six resources were previously recorded inside the APE/API. Three of the sites required site record updates; the remaining three sites were recorded in the last 10 years and did not require updates to the site records.

Of the built environment resources in the California portion of the Direct APE/API, 49 are previously recorded and were updated. For previously recorded built environment, updates to site forms were completed to demonstrate a representative view of the previously recorded resources in the vicinity of the APE/API.

5.5.4.3.1 Historic Resources

A total of 101 cultural resources of historic age have previously been recorded in the Direct APE/API. This total includes one district, 27 historic archaeological sites, 44 historic structures, seven historic buildings, 20 isolates, and two historic cultural resources of unknown types.

Previously recorded historic-era archaeological resources within the study area are characterized by various types including refuse scatters; buildings, foundations, and railroad yards; military encampment and refuse scatter; linear resources, isolated finds and one district (Desert Training Center, California Arizona Maneuver Area [DTC C-AMA], which is also California Historic Landmark No. 985).For Nevada, all of the resources within the APE/API are historic, and consist of historic road alignments, refuse scatters, the SCE North Transmission Line/Hoover Chino No. 1 transmission line, the Eldorado-Lugo 500-kV transmission line, and historic Crescent Peak Road.

Of the 235 historic-era built environment resources in the California Direct APE/API, 160 are individually ineligible and without special consideration requirements (CRHR Status Code 6Z), and 53 were identified in a reconnaissance survey and require evaluation (CRHR Status Code 7R). The remaining 22 Direct APE/API cultural resources are or have been recommended eligible for the NRHP/CRHR. The status of these 22 cultural resources is categorized as follows:

- Nine are listed in or formally determined eligible for listing in the NRHP/CRHR (CRHR Status Codes 1-2) and meet the definition of a historic property pursuant to NHPA Section 106 and that of a historical resource pursuant to CEQA; and
- 13 are recommended eligible for listing in the NRHP/CRHR (CRHR Status Code 3S/3CS) and meet the definition of a historic property pursuant to NHPA Section 106 and that of a historical resource pursuant to CEQA.

Historic resources within the Direct APE/API date to the nineteenth and twentieth centuries; with early pedestrian pathways and transportation routes serving as a backbone for all subsequent settlement patterns. Railroad features dating from ca. 1885 through 1905 represent nineteenth century cultural resources in the Direct APE/API. Roads and electrical conveyance facilities represent the majority of twentieth century cultural resources in the Direct APE/API. More prominent resources identified include:

- Mojave Trail, also known as the Spanish Trail, Old Mojave Road, and Old Government Road, with Spanish use as early as 1776
- Atlantic and Pacific Railroad (1883) later known as the AT&SF Railroad (1885)
- Union Pacific Railroad (ca. 1880s–1905)
- San Pedro-Los Angeles & Salt Lake Railroad (1901–1905)
- National Old Trails Highway/U.S. Route 66 (1912 / 1926)
- SCE Bishop Creek – San Bernardino Tower Line (1911–1913)
- SCE Boulder Dam-San Bernardino Line (1930–1931)
- Barstow Road / State Route 247 (pre-1925)
- State Route 18 (1852; 1933–1934)
- SCE North and South Boulder-Chino Transmission Lines (1936–1941)
- SCE Eldorado 500-kV Transmission Line System (1968–1970).

5.5.4.3.2 Prehistoric Resources

A total of 11 previously recorded prehistoric cultural resources are located within the Direct APE/API. Previously recorded prehistoric archaeological sites within the Direct APE/API consist of various resource types including lithic scatters, ceramic scatters, rock shelters, and isolated finds. Table 5.5-2 provides a detailed description of the types of previously recorded prehistoric resources that are within the EPL Project APE/API.

Table 5.5-2. Summary of Previously Recorded Prehistoric Resources within the Direct APE/API

Resource Attribute(s)	Quantity
Lithic Scatter	4
Lithic Scatter, Ceramic Scatter	1
Rock Shelter/Cave	1
Unknown	1
Other	4

5.5.4.3.3 Multicomponent Resources

Multicomponent resources include both a prehistoric and a historic-era component A total of 6 multicomponent resources were previously recorded within the Direct APE/API. These resources include various combinations of prehistoric and historic-era site types, primarily prehistoric artifact scatters, prehistoric quarries, and historic-era trash scatters.

5.5.4.4 NRHP/CRHR Eligibility Status

Within the Direct APE/API, one built environment resource is a California State Historical Landmark (CRHR no. 963 – The Mohave Road). Eight additional built environment resources in California are determined eligible for the NRHP and CRHR. Based on studies as part of the HBER, 13 resources in the California APE/API appear eligible for listing. The eligibility of historic built environment resources within the Direct APE/API for the NRHP and CRHR are detailed below in Table 5.5-3, which provides counts of resources listed in each category.

Table 5.5-3. Eligibility Status of Built Environment Resources within the Direct APE/API

Category Status	NRHP Count	CRHR Count
Listed Or Determined Eligible Codes 1-2	9 CA 3 NV	9 CA
Evaluated Eligible Code 3	13 CA 4 NV	13 CA
Not eligible (6Z)	160 CA 7 NV	160 CA
Not Evaluated	53 CA 1 NV	53 CA
Unknown	0	0

For the EPL project, known built environment historic properties within 0.5 mile (0.8 km) of the project are considered part of the APE and were reviewed for potential effects (e.g., visual effects). The Visual APE/API, which is a 0.5 mile radius around the twelve proposed inter-set towers, totals 4,819.55 acres. Of the 22 Visual APE/API built environment resources within the California Direct APE/API that have been determined eligible or recommended eligible for the NRHP, nine are Status Code 1 and 2 and are formally determined eligible: SCE Bishop Creek to San Bernardino "Tower Line," California Aqueduct East Branch, California Southern Railroad, U.S. Highway 66, Western Division of the Atlantic & Pacific Railroad, Mojave Road, Boulder-Chino South 220 kV Transmission Line, Boulder-Chino North 220 kV Transmission Line, and the SCE Boulder Dam-San Bernardino 138 kV Transmission Line. Thirteen of the 22 Visual APE/API historic-era improvements resources within the California Direct APE/API that have been determined eligible or recommended eligible for the NRHP appear eligible based on the survey conducted for the HBER. These include Cushenbury Spur Branch, Atchison, Topeka, & Santa Fe Railroad (AT&SF), State Route 18, Camp Rock Road, Interstate 40, SCE Pisgah Switchyard, Crucero Road, Kelbaker Road, Cima Road, Ivanpah Road, San Pedro-Los Angeles & Salt Lake Railroad, Nipton Road/SR 164, Eldorado 500 kV Transmission Line System, and State Route 247.

5.5.4.5 Previously Conducted Cultural Resource Studies within the Visual APE/API

Within California, approximately 178.1 acres, or 3.7 percent of the Indirect APE/API, was found to have been subject to survey in the past 10 years. All of these studies are intensive pedestrian surveys.

5.5.4.6 Previously Recorded Resources within the Visual APE/API

The records search identified 39 previously recorded archaeological resources within or intersecting the Visual APE/API. Of these resources, 27 (69.2 percent) are historic and 12 (30.8 percent) are prehistoric. The majority (n=36, 92.3 percent) of the previously recorded cultural resources within the Visual APE/API were recorded since 2015. No recordation dates are available for the remaining three (n= 7.7 percent) of the cultural resources within the Visual APE/API.

Of the 26 Visual APE/API historic-era improvements, three were previously recorded and 23 are previously unrecorded. Site forms were not prepared for historic-era improvements identified within the California Visual APE/API. One noteworthy property in the Visual APE/API is Interstate 15, previously recorded as P-36-007689 and P-36-012658. Although Interstate 15 was not formally evaluated as part of this project, it appears eligible under CRHR Criterion 3CS as an individual property identified through survey evaluation for a significant association with the transportation theme.

5.5.4.7 Time Periods

Of the 39 previously recorded archaeological resources present within the Visual APE/API, 12 (30.8 percent) are prehistoric and 27 (69.2 percent) are historic.

Of the 54 built environment cultural resources observed within the Visual California APE, 26 are historic (at least 45 years of age) and 28 are non-historic (less than 45 years of age).

5.5.4.8 Survey

For archaeological resources, SWCA conducted an intensive-level pedestrian inventory (BLM Class III) of the APE/API between February 25 and July 17, 2020. SWCA and its subconsultant MCC surveyed portions of the Direct APE/API within California. Between November 29 and January 17, 2023, SWCA conducted a supplemental survey, resulting in a total of 5,535.53 acres surveyed within California between 2020 and 2023. Of this, 1,240.32 acres is within the Direct APE/API. A total of 0.52 acres within the Direct APE/API were inaccessible pending land ownership clarification by the DoD Twentynine Palms and the BLM Barstow Field Office; these areas remain unsurveyed. Another 126.5 acres were not surveyed because they had been adequately and intensively surveyed within the last 10 years (i.e., since 2012).

As a result of the Class III inventory, SWCA identified and recorded 588 archaeological resources. Of the 588 cultural resources, 308 are within the current EPL project Direct APE/API for California. These resources consist of 24 previously recorded resources, 171 newly identified sites, and 113 newly identified isolated finds. In Nevada, SWCA recorded 23 newly identified resources, including 13 sites and 10 isolated finds.

For the built environment, information regarding the intensive pedestrian survey of the project APE/API and the findings of the survey would be made available following completion of the survey and agency approval of the associated technical report.

5.5.4.8.1 NRHP/CRHR Eligibility Status for Archaeological Resources within the APE/API

In total, three archaeological resources are recommended eligible for the NRHP and CRHR, all previously recorded sites (Table 5.5-4). A fourth previously recorded resource, the Desert Training Center Historic Landmark #985 (P-36-029043), is listed on the CRHR but is not located within the EPL Project area and so was not evaluated for the NRHP. In total, 13 resources remain unevaluated for the NRHP and CRHR and will be treated as eligible and avoided by the EPL Project or evaluated prior to project implementation (Table 5.5-4). Furthermore, 22 resources have been previously determined not eligible for the NRHP and CRHR and 269 resources are recommended not eligible (including the 119 newly recorded isolated finds) for the NRHP and CRHR. In addition to these resources, there are seven sites that are outside the EPL Project area (including the Desert Training Center, P-36-029043, which is listed on the CRHR but was not evaluated for the NRHP by the current study), one previously recorded resource that is no longer present within the APE or has been destroyed, and one previously recorded resource that could not be relocated. These sites were not evaluated for NRHP or CRHR eligibility.

Table 5.5-4. Summary of NRHP/CRHR Eligibility Status for Archaeological Resources within the Direct APE/API

	NRHP				CRHR				
Resources	**Listed**	**Eligible**	**Not eligible**	**Not Evaluated**	**Listed**	**Eligible**	**Not eligible**	**Not Evaluated**	**Total**
Previously recorded sites	0	1	22	4*	1*	1	22	3	**27**
Previously recorded isolated finds	N/A	0	0	0	N/A	0	0	0	**0**
Newly recorded sites	N/A	2	151	10	N/A	2	151	10	**163**
Newly recorded isolated finds	N/A	0	119	0	N/A	0	119	0	**119**
Total	**0**	**3**	**292**	**14**	**1**	**3**	**292**	**13**	**309**

* Includes the Desert Training Center Historic Landmark #985 (P-36-029043), which is listed on the CRHR but has not been previously evaluated for the NRHP.

Of the 26 Visual APE/API historic-era improvements, three were previously recorded and 23 are previously unrecorded. Site forms were not prepared for historic-era improvements identified within the California Visual APE/API. These resources were not intensively documented and evaluated as part of the HBER, although the improvements were observed for the purposes of discerning the potential for NRHP/CRHR significance.

No built environment NRHP cultural resources were identified in the California Visual APE/API.

5.5.4.9 Native American Consultation

California Public Resources Code (PRC) Section 5097.91 established the Native American Heritage Commission (NAHC), the duties of which include taking inventory of places of religious or social significance to Native Americans and identifying known graves and cemeteries of Native Americans on private lands. PRC Section 5097.98 specifies a protocol to follow when the NAHC is notified of a discovery of Native American human remains from a county coroner.

SWCA contacted the NAHC in July 2020 with a request for a search of its Sacred Lands File within the EPL Project area, and for contact information for Native American groups or individuals who may have concerns about cultural resources in the project APE/API. A search of the Sacred Lands File was completed for the project with positive results. The NAHC responded to the request in a letter dated July 15, 2020, that was received via email. In addition to this finding, the NAHC provided a list of 10 individual Native American groups to contact for consultation. As the lead federal agency, the BLM will conduct Native American consultation for the project pursuant to Section 106 of the NHPA; the CPUC, as lead CEQA agency, will conduct tribal consultation in compliance with Assembly Bill 52 (AB 52).

See Section 5.18, Tribal Cultural Resources, for a discussion on cultural resources of potential importance to California Native American tribes.

5.5.5 Cultural Resources Regulatory Setting

Federal, state, and local regulations were reviewed for applicability to the EPL Project.

5.5.5.1 Federal

A federal undertaking is a project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a federal agency, including those carried out by or on behalf of a federal agency;

those carried out with federal financial assistance; those requiring a federal permit, license, or approval; and those subject to state or local regulation administered pursuant to a delegation or approval by a federal agency (36 Code of Federal Regulations [CFR] 800.16[y]). Actions and undertakings may take place either on or off federally controlled property and include new and continuing projects, activities, or programs and any of their elements not previously considered under the National Environmental Policy Act (NEPA) and Section 106 of the NHPA. Because the project is located on federal lands, it is subject to compliance with NEPA and Section 106 of the NHPA.

5.5.5.1.1 National Environmental Policy Act

The National Environmental Policy Act (NEPA) requires the federal government to carry out its plans and programs in such a way as to "preserve important historic, cultural, and natural aspects of our national heritage" (42 United States Code [USC] Section 4331[b][4]). The intent of the statute is to require that agencies obtain sufficient information regarding historic and cultural properties (including consulting, for example, appropriate members of the public; local, state and other federal government agencies; and Native American tribes, organizations, and individuals) to make a determination of the historical and cultural significance of affected historic or cultural properties and to take into account whether irreversible adverse impacts to such resources can or should be avoided, minimized, or mitigated.

5.5.5.1.2 National Historic Preservation Act

Enacted in 1966 and amended most recently in 2014, the National Historic Preservation Act (NHPA; 54 USC 300101 et seq.) instituted a multifaceted program, administered by the Secretary of the Interior, to encourage sound preservation policies of the nation's cultural resources at the federal, state, and local levels. The NHPA authorized the expansion and maintenance of the NRHP, established the position of State Historic Preservation Officer (SHPO), and provided for the designation of State Review Boards. The NHPA also set up a mechanism to certify local governments to carry out the goals of the NHPA, assisted Native American tribes in preserving their cultural heritage, and created the Advisory Council on Historic Preservation (ACHP).

5.5.5.1.2.1 Section 106

Section 106 of the NHPA requires federal agencies to consult with the ACHP to take into account the effects of their undertakings on historic properties. The Section 106 process involves identification of significant historic resources within an "area of potential effects [APE]; determination if the undertaking will cause an adverse effect on historic resources; and resolution of those adverse effects through execution of a Memorandum of Agreement." Title 36 of the Code of Federal Regulations (CFR) part 800 defines how federal agencies meet these responsibilities. 36 CFR 800.5(a) describes the process for evaluating a project's adverse effects on cultural resources. An adverse effect is found when a federal undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register of Historic Places (NRHP) in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Examples of adverse effects are provided in 36 CFR 800(a)(2) and include, but are not limited to:

- Physical destruction of or damage to all or part of the property
- Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR part 68) and applicable guidelines

- Removal of the property from its historic location
- Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance
- Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features
- Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization
- Transfer, lease, or sale of property out of federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance

5.5.5.1.3 National Register of Historic Places

The NRHP was established by the NHPA of 1966 as "an authoritative guide to be used by federal, state, and local governments, private groups and citizens to identify the Nation's cultural resources and to indicate what properties should be considered for protection from destruction or impairment" (36 CFR part 60.2). The NRHP recognizes properties that are significant at the national, state, and local levels. To be eligible for the NRHP, a resource must be significant in American history, architecture, archaeology, engineering, or culture. Districts, sites, buildings, structures, and objects of potential significance must also possess integrity of location, design, setting, materials, workmanship, feeling, and association.

A property is eligible for the NRHP if it is significant under one or more of the following criteria:

- Criterion A: It is associated with events that have made a significant contribution to the broad patterns of our history.
- Criterion B: It is associated with the lives of persons who are significant in our past.
- Criterion C: It embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinction.
- Criterion D: It has yielded, or may be likely to yield, information important in prehistory or history. Ordinarily cemeteries, birthplaces, or graves of historic figures; properties owned by religious institutions or used for religious purposes; structures that have been moved from their original locations; reconstructed historic buildings; and properties that are primarily commemorative in nature are not considered eligible for the NRHP unless they satisfy certain conditions. In general, a resource must be 50 years of age to be considered for the NRHP unless it satisfies a standard of exceptional importance.

In addition to meeting the significance criteria, a property must retain historic integrity, which is defined in the National Register Bulletin 15 as the "ability of a property to convey its significance" (National Park Service 1990). To assess integrity, the National Park Service recognizes seven aspects or qualities that, considered together, define historic integrity. To retain integrity, a property must possess several, if not all, of these seven qualities, which are defined in the following manner in National Register Bulletin 15:

- Location: the place where the historic property was constructed or the place where the historic event occurred

- Design: the combination of elements that create the form, plan, space, structure, and style of a property
- Setting: the physical environment of a historic property
- Materials: the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property
- Workmanship: the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory
- Feeling: a property's expression of the aesthetic or historic sense of a particular period of time
- Association: The direct link between an important historic event or person and a historic property

A cultural resource that meets the definition provided, meets at least one of the criteria listed above, and meets at least several qualities of historic integrity is considered eligible for the NRHP and is referred to as a "historic property."

5.5.5.1.4 Archaeological Resources Protection Act

The Archaeological Resources Protection Act (ARPA) of 1979 provides for the protection of archaeological resources more than 100 years old and that occur on federally owned or controlled lands. The statute makes it unlawful to excavate and remove items of archaeological interest from federal lands without a permit, and it defines the process for obtaining such a permit from the responsible federal agency. This process includes a 30-day notification to interested persons, including Native American tribes, by the agency to receive comments regarding the intended issuing of a permit. The law establishes a process for prosecuting persons who illegally remove archaeological materials from lands subject to ARPA. The law also provides for curation of archaeological artifacts, ecofacts, notes, records, photographs, and other items associated with collections made on federal lands. Standards for curation are provided for in regulations at 36 CFR 79.

5.5.5.1.5 Native American Graves Protection and Repatriation Act

The Native American Graves Protection and Repatriation Act (NAGPRA) provides a process for museums and federal agencies to return certain Native American "cultural items" (i.e., human remains, funerary objects, sacred objects, and objects of cultural patrimony) to lineal descendants, culturally affiliated Native American tribes (i.e., tribes recognized by the Secretary of the Interior), and Native Hawaiian organizations, if the legitimate cultural affiliation of the cultural items can be determined according to the law. Museums, as defined under the statute, are required to inventory cultural items in their possession and determine which items can be repatriated to the appropriate party. Cultural items intentionally or unintentionally excavated and removed from federal lands may be subject to NAGPRA.

Under the NAGPRA regulations (43 CFR 10.3 and 10.5), a federal agency must prepare, approve, and sign a Plan of Action (POA) if the agency intends to excavate or remove, or leave in place NAGPRA cultural items when these cultural items are exposed or are found already exposed, and does not wish for activity in the area of the exposed cultural items to halt.

5.5.5.2 State

5.5.5.2.1 California Public Utilities Commission General Order 131-D

Pursuant to CPUC General Order (GO) 131-D, the California Public Utilities Commission (CPUC) has sole and exclusive jurisdiction over the siting and design of electric power line projects, distribution lines,

substations, or electric facilities constructed by public utilities in the state of California. Under CEQA, the CPUC is the lead agency for such EPL Project elements within the state of California. SCE is required to comply with GO 131-D and is seeking a Certificate of Public Convenience and Necessity (CPCN) from the CPUC for the EPL Project; therefore, compliance with CEQA and other state environmental statutes involving cultural resources is required. The CPUC is tasked with compliance of all provisions in CEQA and the CEQA Guidelines that concern cultural resources as explained below.

5.5.5.2.2 California Environmental Quality Act

The California Environmental Quality Act (CEQA) Statute and Guidelines direct lead agencies to determine whether cultural resources are "historically significant" resources. CEQA requires that potential project impacts to cultural resources be assessed, and requires mitigation if significant (or "unique") cultural resources would be affected (Section 21083.2 [a-1] and CEQA Guidelines Appendix G). Generally, a cultural resource is considered "historically significant" if the resource is 45 years old or older; possesses integrity of location, design, setting, materials, workmanship, feeling, and association; and meets the requirements for listing in the CRHR under any one of the following criteria:

1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.

2) Is associated with the lives of persons important in our past.

3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.

4) Has yielded, or may be likely to yield, information important in prehistory or history (Title 14 California Code of Regulations [CCR] Section 15064.5).

The statutes and guidelines specify how cultural resources are to be managed in the context of projects, such as the EPL Project. Briefly, archival and field surveys must be conducted, and identified cultural resources must be inventoried and evaluated in prescribed ways. Prehistoric and historical archaeological resources as well as historic built environment resources deemed "historically significant" must be considered in project planning and development. Resources eligible for the CRHR are referred to as "historical resources."

If a Lead Agency determines that an archaeological site is a historical resource, the provisions of PRC Section 21084.1 and CEQA Guidelines Section 15064.5 would apply. If an archaeological site does not meet the CEQA Guidelines criteria for a historical resource, the site is to be treated in accordance with the provisions of PRC Section 21083 regarding unique archaeological resources. The CEQA Guidelines note that if a resource is neither a unique archaeological resource nor a historical resource, the effects of a project on that resource shall not be considered a significant effect on the environment (CEQA Guidelines Section 15064[c][4]). CEQA Guidelines Section 15064.5(e), Assembly Bill 2641, Public Resources Code Sections 15064.5(e) and 15064.5(d), and Health and Safety Code Section 7050.5

If human remains of any kind are found during construction activities on non-federal or reservation land, these codes require that ground-disturbing project activities be stopped in the immediate vicinity of the discovery and that the county coroner be called in to assess the remains. The coroner will examine the remains and determine the next appropriate action based on his or her findings. If the county coroner determines that the remains to be of Native American origin, the coroner must contact the NAHC within 24 hours. The NAHC will then identify a most likely descendant (MLD) to be consulted regarding treatment and/or reburial of the remains.

5.5.5.2.2.1 Area of Potential Impact

Under CEQA, the impact area is defined as the geographic area or area within which a project may directly or indirectly cause alterations in the character or use of significant historical or archaeological resources. In the current document, area of potential impact (API) is used for this term.

5.5.5.2.3 California State Assembly Bill 52

California State Assembly Bill 52 of 2014 amended PRC Section 5097.94 and added PRC Sections 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3.

AB 52 formalizes the lead agency/tribal consultation process, requiring the lead agency to initiate consultation with California Native American groups that are traditionally and culturally affiliated with the project, including tribes that may not be federally recognized. Lead agencies are required to begin consultation prior to the release of a negative declaration, mitigated negative declaration, or environmental impact report.

Section 4 of AB 52 adds Sections 21074(a) and 21074(b) to the PRC, which address tribal cultural resources and cultural landscapes. Section 21074(a) defines tribal cultural resources as one of the following:

1. Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:
    a. Included or determined to be eligible for inclusion in the CRHR
    b. Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1
2. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

Section 1 (a)(9) of AB 52 establishes that "a substantial adverse change to a tribal cultural resource has a significant effect on the environment." Effects on tribal cultural resources should be considered under CEQA. Section 6 of AB 52 adds Section 21080.3.2 to the PRC, which states that parties may propose mitigation measures "capable of avoiding or substantially lessening potential significant impacts to a tribal cultural resource or alternatives that would avoid significant impacts to a tribal cultural resource." Further, if a California Native American tribe requests consultation regarding project alternatives, mitigation measures, or significant effects on tribal cultural resources, the consultation shall include those topics (PRC Section 21080.3.2[a]). The environmental document and the mitigation monitoring and reporting program (where applicable) shall include any mitigation measures that are adopted (PRC Section 21082.3[a]).

5.5.5.2.4 California Register of Historical Resources

Created in 1992 and implemented in 1998, the CRHR is "an authoritative guide in California to be used by state and local agencies, private groups, and citizens to identify the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change" (PRC Sections 21083.2 and 21084.1). Certain properties, including those listed in or formally determined eligible for listing in the NRHP and California Historical Landmarks numbered 770 and

higher, are automatically included in the CRHR. Other properties recognized under the California Points of Historical Interest program, identified as significant in historical resources surveys, or designated by local landmarks programs, may be nominated for inclusion in the CRHR. According to PRC Section 5024.1(c), a resource, either an individual property or a contributor to a historic district, may be listed in the CRHR if the State Historical Resources Commission determines that it meets one or more of the following criteria, which are modeled on NRHP criteria:

- Criterion 1: It is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
- Criterion 2: It is associated with the lives of persons important in our past.
- Criterion 3: It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
- Criterion 4: It has yielded, or may be likely to yield, information important in history or prehistory.

Resources nominated to the CRHR must retain enough of their historic character or appearance to convey the reasons for their significance. Resources whose historic integrity does not meet NRHP criteria may still be eligible for listing in the CRHR.

5.5.5.2.5 Treatment of Human Remains

The disposition of burials falls first under the general prohibition on disturbing or removing human remains under California Health and Safety Code (CHSC) Section 7050.5. More specifically, remains suspected to be Native American are treated under CEQA at CCR Section 15064.5; PRC Section 5097.98 illustrates the process to be followed in the event that remains are discovered. If human remains are discovered during construction, no further disturbance to the site shall occur, and the County Coroner must be notified (CCR 15064.5 and PRC 5097.98).

All work reported here was conducted in conformance with the stipulations of SWCA's U.S. DOI BLM Cultural Resources Use Permit (CRUP) Authorization CA-17-23. All work was also conducted in conformance with SCE's Environmental, Health and Safety Handbook for Contractors (2016).

5.5.5.3 Local

The CPUC has sole and exclusive state jurisdiction over the siting and design of the EPL Project. Pursuant to CPUC General Order 131-D (GO 131-D), Section XIV.B, "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters." Consequently, public utilities are directed to consider local regulations and consult with local agencies, but the counties' and cities' regulations are not applicable as the counties and cities do not have jurisdiction over the EPL Project. Accordingly, the following discussion of local land use regulations is provided for informational purposes only.

General plans and municipal codes were reviewed for relevant local policies pertaining to cultural resources in the vicinity of the EPL Project. General plans reviewed included preservation programs for Inyo, Kern, and San Bernardino counties; the Daggett Community Plan; and the City of Barstow Historic Preservation Program. Relevant goals, policies, and objectives are discussed in the following subsections.

5.5.5.3.1 San Bernardino County Historic Preservation Program

The County of San Bernardino General Plan includes goals supporting the protection of historical and cultural resources within the Housing, Conservation, Open Space, and Economic Development Elements. Goals, policies, and objectives are provided below.

Housing Element Goal H 4.4 - preserve historic structures through the use of various federal and state tax incentive and other programs.

Conservation Element Goal CO 3 - the County will preserve and promote its historic and prehistoric cultural heritage.

- Policy CO 3.1 - Identify and protect important archaeological and historic cultural resources in areas of the County that have been determined to have known cultural resource sensitivity.

Programs

  - Require a cultural resources field survey and evaluation prepared by a qualified professional for projects located within the mapped Cultural Resource Overlay area.
  - Mitigation of impacts to important cultural resources will follow the standards established in Appendix K of the California Environmental Quality Act Guidelines, as amended to date.
- Policy CO 3.2 - Identify and protect important archaeological and historic cultural resources in all lands that involves disturbance of previously undisturbed ground.

Programs

  - 1. Require the Archaeological Information Center at the San Bernardino County Museum to conduct a preliminary cultural
  - resource review prior to the County's application acceptance for all land use applications in planning regions lacking Cultural Resource Overlays and in lands located outside of planning regions.
  - 2. Should the County's preliminary review indicate the presence of known cultural resources or moderate to high sensitivity for the potential presence of cultural resources, a field survey and evaluation prepared by a qualified professional will be required with project submittal. The format of the report and standards for evaluation will follow the "Guidelines for Cultural Resource Management Reports" on file with the San Bernardino County Land Use Services Department.
- Policy CO 3.3 - Establish programs to preserve the information and heritage value of cultural and historical resources.
- Policy CO 3.4 - The County will comply with Government Code Section 65352.2 (SB18) by consulting with tribes as identified by the California Native American Heritage Commission on all General Plan and specific plan actions.

Programs

  - 1. Site record forms and reports of surveys, test excavations, and data recovery programs will be filed with the Archaeological Information Center at the San Bernardino County Museum and will be reviewed and approved in consultation with that office.
  - a. Preliminary reports verifying that all necessary archaeological or historical fieldwork has been completed will be required prior to project grading and/or building permits.

- b. Final reports will be submitted and approved prior to project occupancy permits.
- 2. Any artifacts collected or recovered as a result of cultural resource investigations will be catalogued per County Museum guidelines and adequately curated in an institution with appropriate staff and facilities for their scientific information potential to be preserved. This shall not preclude the local tribes from seeking the return of certain artifacts as agreed to in a consultation process with the developer/project archaeologist.
- 3. When avoidance or preservation of an archaeological site or historic structure is proposed as a form of mitigation, a program detailing how such long-term avoidance or preservation is assured will be developed and approved prior to conditional approval.
- 4. In areas of potential but unknown sensitivity, field surveys prior to grading will be required to establish the need for paleontological monitoring.
- 5. Projects requiring grading plans that are located in areas of known fossil occurrences, or demonstrated in a field survey to have fossils present, will have all rough grading (cuts greater than 3 feet) monitored by trained paleontological crews working under the direction of a qualified professional, so that fossils exposed during grading can be recovered and preserved. Fossils include large and small vertebrate fossils; the latter recovered by screen washing of bulk samples.
- 6. A report of findings with an itemized accession inventory will be prepared as evidence that monitoring has been successfully completed. A preliminary report will be submitted and approved prior to granting of building permits, and a final report will be submitted and approved prior to granting of occupancy permits. The adequacy of paleontological reports will be determined in consultation with the Curator of Earth Science, San Bernardino County Museum.

- Policy CO 3.5 - Ensure that important cultural resources are avoided or minimized to protect Native American beliefs and traditions.

Programs

- 1. Consistent with SB 18, as well as possible mitigation measures identified through the CEQA process, the County will work and consult with local tribes to identify, protect and preserve “traditional cultural properties” (TCPs). TCPs include human-made sites and resources as well as natural landscapes that contribute to the cultural significance of areas.
- 2. The County will protect confidential information concerning Native American cultural resources with internal procedures, per the requirements of SB 922, an addendum to SB 18. The purpose of SB 922 is to exempt cultural site information from public review as provided for in the Public Records Act. Information provided by tribes to the County shall be considered confidential or sacred.
- 3. The County will work in good faith with the local tribes, developers/applicants and other parties if the local affected tribes request the return of certain Native American artifacts from private development projects. The developer is expected to act in good faith when considering the local tribe’s request for artifacts. Artifacts not desired by the local tribe will be placed in a qualified repository as established by the California State Historical Resources Commission. If no facility is available, then all artifacts will be donated to the local tribe.
- 4. The County will work with the developer of any “gated community” to ensure that the Native Americans are allowed future access, under reasonable conditions, to view and/or visit known sites within the “gated community.” If a site is identified within a gated community

project, and preferably preserved as open space, the development will be conditioned by the County allow future access to Native Americans to view and/or visit that site.

- 5. Because contemporary Native Americans have expressed concern over the handling of the remains of their ancestors, particularly with respect to archaeological sites containing human burials or cremations, artifacts of ceremonial or spiritual significance, and rock art, the following actions will be taken when decisions are made regarding the disposition of archaeological sites that are the result of prehistoric or historic Native American cultural activity:
- a. The Native American Heritage Commission and local reservation, museum, and other concerned Native American leaders will be notified in writing of any proposed evaluation or mitigation activities that involve excavation of Native American archaeological sites, and their comments and concerns solicited.
- b. The concerns of the Native American community will be fully considered in the planning process.
- c. If human remains are encountered during grading and other construction excavation, work in the immediate vicinity will cease and the County Coroner will be contacted pursuant to the state Health and Safety Code.
- d. In the event that Native American cultural resources are discovered during project development and/or construction, all work in the immediate vicinity of the find will cease and a qualified archaeologist meeting U.S. Secretary of Interior standards will be hired to assess the find. Work on the overall project may continue during this assessment period.
- e. If Native American cultural resources are discovered, the County will contact the local tribe. If requested by the tribe, the County will, in good faith, consult on the discovery and its disposition with the tribe.

Conservation Element Goal M/CO 4 - Protect cultural and paleontological resources within the Mountain Region.

- Policy M/CO 4.1 - Identify and protect significant cultural resources from damage or destruction.
- Policy M/CO 4.2 - Inventory Cultural Resources, encouraging inputs from the local historical society and committees.
- Policy M/CO 4.3 - Prepare a Historical/Archeological Overlay for community plan areas in developing land use designations and the formulation and evaluation of plan amendments and development proposals to provide a more systematic and streamlined method of protecting important cultural resources.

Conservation Element Goal D/CO 6 - Protect cultural and paleontological resources within the Desert Region.

- Policy D/CO 6.1 - Identify and protect significant cultural resources from damage or destruction.
- Policy D/CO 6.2 - Inventory Cultural Resources, encouraging inputs from the local historical society and committees.
- Policy D/CO 6.3 - Prepare a Historical/Archeological Overlay for community plan areas in developing land use designations and the formulation and evaluation of plan amendments and development proposals to provide a more systematic and streamlined method of protecting important cultural resources.

Open Space Element Goal OS 4 - The County will preserve and protect cultural resources throughout the County, including parks, areas of regional significance, and scenic, cultural and historic sites that contribute to a distinctive visual experience for visitors and quality of life for County residents.

Economic Development Element Goal ED 21 - Expand on historic and natural (gateway to the mountains and deserts) assets to attract recreational visitors.

5.5.5.3.2 Lucerne Valley Community Plan

San Bernardino prepared a community plan for Lucerne Valley in 2007. The county is currently in the process of updating the plan to a "community action plan." While community character is identified as an area or concern, there are no specific goals, policies, or objectives for historic preservation, archaeology, or cultural resources included within the 2007 Lucerne Valley Community Plan. Likewise, the 2019 draft community action plan contains little information regarding the preservation of cultural resources. Preservation of historic resources is listed as an important value in the 2019 plan: "Lucerne Valley residents value the history, character, and beauty of the area." One specific mention of history is the promotion of a museum in the area: Action Statement F.1: Partner with local organizations such as the Lucerne Valley Museum Association to establish and operate a Lucerne Valley Museum. Activities of the museum would include "Historical tours of points of interest within the community."

5.5.5.3.3 Town of Apple Valley Historic Preservation Program

The Town of Apple Valley has a long-standing historic preservation program. This includes a Historical Advisory Committee established in 1990. Pursuant to Apple Valley Municipal Code Section 2.24.040 the Town Council may declare any real property such as a building, structure, site archaeological excavation or object that is unique or significant because of its location, design, setting, materials, workmanship or aesthetic feeling, and for meeting one of the following criteria.

(1) That is associated with events that have made a significant contribution to the Nation, State or community, or:

(2) That is associated with lives of persons who made a significant contribution to the National, State or local history, or;

(3) That reflects or exemplifies a particular period of the National, State or local history, or;

(4) That embodies the distinctive characteristics of a type, period or method of construction, or;

(5) That presents the work of a master builder, designer, artist or architect whose individual genius influenced his or her age; or that possesses high artistic value, or;

(6) That has yielded or may be likely to yield information important to National, State or local history or prehistory.

The Apple Valley General Plan includes the following goals, policies, and implementation programs for cultural resources:

Goal: That all elements of the Town's cultural heritage, including archaeological and historic sites, artifacts, traditions and other elements, shall be professionally documented, maintained, preserved, conserved and enhanced.

- Policy 1.A Early in the planning process, the Town shall implement its obligation to identify, document and assess archaeological, historical and cultural resources that proposed development projects and other activities may affect.
  - Program 1.A.1 Where proposed development or land uses have the potential to adversely impact sensitive cultural resources, it shall be subject to evaluation by a qualified specialist, comprehensive Phase I studies and appropriate mitigation measures shall, as necessary, be incorporated into project approvals.
  - Program 1.A.2 The Town shall implement the requirements of state law relating to cultural resources, including Government Code 65352.3, and any subsequent amendments or additions.
- Policy 1.B The Town shall establish and maintain a confidential inventory of archaeological and historical resources within the Town, including those identified in focused cultural resources studies.
- Policy 1.C The Town shall, to the greatest extent possible, protect sensitive archaeological and historic resources from vandalism and illegal collection.
  - Program 1.C.1 Any information, including mapping, that identifies specific locations of sensitive cultural resources, shall be maintained in a confidential manner, and access to such information shall be provided only to those with appropriate professional or organizational ties.
- Policy 1.D Public participation in and appreciation of the Town's cultural heritage shall be encouraged.
  - Program 1.D.1 The Town shall implement a systematic program to enhance public awareness of Apple Valley's heritage, engender wide-ranging support for its preservation, and enhance community pride.
  - Program 1.D.2 The Town shall support the efforts of local cultural associations to obtain historical materials and artifacts, and to educate the public about the Town's and region's cultural heritage.

5.5.5.3.4 City of Hesperia Historic Preservation Program

Section 16 of the Hesperia Municipal Code contains the development code and covers "Historical Resources Designation and Protection" at Article VIII. The main purpose of article 16.20.270 is to ensure the protection, enhancement, perpetuation and use of structures and sites of historic, architectural, and engineering significance, located within the city that are of cultural and aesthetic benefit to the community. Section 16.20.290 provides for the City Council's designation of a Landmark pending eligibility under one of the following criteria categories.

Historical and Cultural Significance.

1. The proposed landmark is particularly representative of an historical period, type, style, region, or way of life.
2. The proposed landmark is an example of a type of building which was once common but is now rare.
3. The proposed landmark is of greater age than most of its kind.

4. The proposed landmark was connected with someone who is or was renowned, important, or a local personality.
5. The proposed landmark is connected with a business or use which was once common but is now rare.
6. The architect or builder was significant.
7. The site is the location of an important historic event or building.

B. Historic Architectural and Engineering Significance.

1. The construction materials or engineering methods used in the proposed landmark are unusual, significant, or uniquely effective.
2. The design of the proposed landmark contains details and materials that possess extraordinary or unique aesthetic qualities.

C. Neighborhood and Geographic Setting.

1. The proposed landmark materially benefits the historic character of the neighborhood.

- The proposed landmark in its location represents an established and familiar visual feature of the neighborhood, community or city.

5.5.6 Cultural Resources Significance Criteria

CEQA, its Guidelines, and other provisions of the PRC call for the protection and preservation of significant cultural resources (i.e., "historical resources" and "unique archaeological resources"). The CEQA Guidelines provide three ways in which a resource can be a "historical resource," and thus a cultural resource meriting analysis:

1. The resource is listed on the CRHR;
2. The resource is included in a local register of historical resources (pursuant to PRC Section 5020.1[k]), or identified as significant in an historical resources survey (meeting the criteria in PR Section 5024.1[g]); or
3. The lead agency determines the resource is "historically significant" by assessing CRHR listing guidelines that parallel the federal criteria (CEQA Guidelines Section 15064.5[a][1]–[3] [as amended]).

To qualify as a historical resource under 1) or 3), the resource must also retain the integrity of its physical identity that existed during its period of significance. Integrity is evaluated with regard to retention of location, design, setting, materials, workmanship, feeling, and association (14 CCR 4852[c]).

Finally, under both federal and California state law, Native American human remains and associated grave goods are granted special consideration. Direct and indirect impacts only to historic properties (NRHP) and historical resources (CRHR) are considered in the assessment. Management of cultural resources not eligible for the NRHP or CRHR is not required (36 CFR 800 and Section 15064.5[c][4] of the CEQA Guidelines [as amended]).

The significance criteria for assessing the impacts to cultural resources come from the CEQA Environmental Checklist and states that a project causes a potentially significant impact if it would:

- Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5;
- Cause a substantial adverse change in the significance of an archeological resource pursuant to Section 15064.5; and/or
- Disturb any human remains, including those interred outside of formal cemeteries.

5.5.7 Cultural Resources Impact Analysis

CEQA guidelines specify that a "substantial adverse change in the significance of an historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired" (CEQA Guidelines Section 15064.5). Material impairment occurs when a project alters in an adverse manner or demolishes "those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion" or eligibility for inclusion in the NRHP, CRHR, or local register.
In addition, pursuant to CEQA Guidelines section 15126.2, the "direct and indirect significant effects of the project on the environment shall be clearly identified and described, giving due consideration to both the short-term and long-term effects."

The following guides and requirements are of particular relevance to this study's analysis of indirect impacts to historic resources. Pursuant to CEQA Guidelines (Section 15378), study of a project under CEQA requires consideration of "the whole of an action, which has the potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment." CEQA Guidelines (section 15064[d]) further defines direct and indirect impacts as follows:

1. A direct physical change in the environment is a physical change in the environment which is caused by and immediately related to the project.
2. An indirect physical change in the environment is a physical change in the environment which is not immediately related to the project, but which is caused indirectly by the project. If a direct physical change in the environment in turn causes another change in the environment, then the other change is an indirect physical change in the environment.
3. An indirect physical change is to be considered only if that change is a reasonably foreseeable impact which may be caused by the project.

In terms of archaeological resources, PRC Section 21083.2(g) defines a unique archaeological resource as an archaeological artifact, object, or site about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
2. Has a special and particular quality such as being the oldest of its type or the best available example of its type.
3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

If it can be demonstrated that a proposed project would cause damage to a unique archaeological resource, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that they cannot be left undisturbed, mitigation measures are required (PRC Sections 21083.2[a], [b], and [c]). CEQA notes that if an archaeological resource is neither a unique archaeological resource nor a historical resource, the effects of the project on those resources shall not be considered to be a significant effect on the environment (CEQA Guidelines section 15064.5[c][4]).

5.5.7.1 Would the project cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?

5.5.7.1.1 Construction

No Impact. No specific work or modifications are proposed at NRHP/CRHR-listed or eligible public roads, railroads, and aqueducts in the APE/API, thus no construction effects or impacts to any listed or potentially eligible public roads, railroads, or aqueducts are anticipated. Specific work or modifications proposed at NRHP/CRHR-listed or eligible electrical transmission lines and substations include reconductoring, installing a small number of inter-set structures, and replacing/installing necessary associated hardware. In accordance with SCE's Historic-Era Electrical Infrastructure Management Program, the proposed project of reconductoring, installing a small number of inter-set structures, and replacing/installing necessary associated hardware is considered exempt from historical resources impacts and historic property effects pursuant to CEQA and NHPA Section 106, because these construction activities would not remove significant character-defining features dating to the line's established period of significance. These changes are considered replacement in-kind and will occur within the existing transmission corridor. Additionally, the installation of the new inter-set structures is considered reversible under the Secretary of the Interior's Standards for Rehabilitation (36 CFR 67).

5.5.7.1.2 Operation

Less than Significant Impact. Operation and maintenance (O&M) of transmission lines would be controlled remotely through SCE control systems, and manually in the field as required. Maintenance would occur as needed and could include activities such as repairing conductors, washing or replacing insulators, repairing or replacing other hardware components, replacing structures, tree trimming, brush and weed control, and access road maintenance. Most regular O&M activities of overhead facilities are performed from existing access roads with no surface disturbance. Repairs to facilities, such as repairing or replacing structures, could occur in undisturbed but previously surveyed areas. Therefore, operation impacts to historical resources as defined in Section 15064.5 would be less than significant.

5.5.7.2 Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

5.5.7.2.1 Construction

Less than Significant Impact. A total of 359 archaeological resources are present within the project Direct and Visual APE/API, including both archaeological sites and isolated finds; SWCA has made NRHP and CRHR eligibility recommendations for all of these evaluated resources. Of the 309 cultural resources present in the Direct APE, 292 resources have been recommended not eligible for the CRHR or NRHP (including 119 isolated finds), three sites are recommended eligible for the CRHR and/or NRHP, one site is listed on the CRHR but is unevaluated for the NRHP, and 13 resources remain unevaluated for the CRHR and 14 are unevaluated for the NRHP. The 119 isolated finds identified in the APE are not eligible for the CRHR or NRHP. Of the resources within the Direct APE that are eligible or remain

unevaluated for the NRHP and/or CRHR, one resource is within the area of direct impact (ADI) of the EPL Project components; the proposed work area for an existing tower and two access roads intersects NRHP- and CRHR-eligible archaeological site SWCA-L35-001309. SWCA recommends that this resource be avoided. For the resources that are recommended ineligible (or have been previously determined ineligible) for both the NRHP and CRHR, SWCA recommends no further work related to these resources. SWCA recommends that all resources that remain unevaluated for the NRHP and CRHR be treated as eligible and avoided. If avoidance is not feasible, these resources should be subject to additional research, including archival research and/or subsurface testing, as relevant, to support NRHP and CRHR evaluation. These measures would reduce the impacts and effects on archaeological resources to less than significant. Several of the proposed project access roads and overland travel routes intersect resources that are either eligible or remain unevaluated for the NRHP and CRHR. However, for the EPL Project, SCE is committed to avoiding impacts to sites intersected by roads and access routes by avoiding ground-disturbing project construction activities within those sites. Therefore, construction impacts and effects on archaeological resources as defined in Section 15064.5 would be less than significant.

5.5.7.2.2 Operation

Less than Significant Impact. Operation and maintenance (O&M) of transmission lines would be controlled remotely through SCE control systems, and manually in the field as required. Maintenance would occur as needed and could include activities such as repairing conductors, washing or replacing insulators, repairing or replacing other hardware components, replacing structures, tree trimming, brush and weed control, and access road maintenance. Most regular O&M activities of overhead facilities are performed from existing access roads with no surface disturbance. Repairs to facilities, such as repairing or replacing structures, could occur in undisturbed but previously surveyed areas. Therefore, operation impacts to archaeological resources as defined in Section 15064.5 would be less than significant.

5.5.7.3 Would the project disturb any human remains, including those interred outside of dedicated cemeteries?

5.5.7.3.1 Construction

Less than Significant Impact. No human remains have been identified within the EPL Project Direct APE/API as a result of the records search and cultural resources inventory. However, it is possible that human remains could be uncovered. It is not always possible to predict where Native American human remains might occur outside of formal cemeteries. Ground-disturbing activities could disturb human remains, including those interred outside of formal cemeteries. However, implementation of a Workers Environmental Awareness Program (WEAP) would help workers identify potential human remains and establish procedures for stopping work and notifying SCE's cultural resource staff and construction supervisors in the event that human remains are detected.

If human remains are inadvertently disturbed during construction activities, all work in the vicinity of the find would cease within a 100-foot (30.5-m) radius of the remains, and the area would be secured and protected to ensure that no additional disturbance occurs. The county coroner would then be contacted in accordance with CEQA Guidelines Section 15064.5(e), AB 2641, PRC Sections 15064.5(e) and 15064.5(d), and California Health and Safety Code (HSC) Section 7050.5. The coroner would have 2 working days to examine the remains after being notified. If the coroner determines that the remains are Native American (i.e., not subject to the coroner's authority) and located on private or state land, the coroner has 24 hours to notify the NAHC of the determination. The NAHC is required under PRC Section 5097.98 to identify a most-likely descendant (MLD), notify that person, and request that they inspect the remains and make recommendations for treatment and/or disposition. The MLD would have 48 hours to

inspect the find and make recommendations for treatment of the human remains. Work would be suspended in the area of the find until the MLD and landowner confer on the mitigation and treatment of the human remains. However, the human remains and associated burial items would be reburied, with appropriate dignity, on the property in a location not subject to further subsurface disturbance if one of the following occurs:

- The NAHC is unable to identify an MLD.
- The MLD identified fails to make a recommendation.
- The recommendation of the MLD is rejected and the mediation provided in PRC Section 5097.94(k) fails to provide measures acceptable to the landowner.

This procedure would ensure that the remains are treated in accordance with Section 15064.5(d) and (e) of the CEQA Guidelines, California HSC Section 7050.5, and PRC Sections 5097.98 and 5097.99.

As described in Section 5.5.5, Cultural Resources Regulatory Setting, cultural resources intentionally or unintentionally excavated and removed from federal lands may be subject to NAGPRA if the resources are confirmed to be of Native American origin. In the event that Native American items are inadvertently discovered on federal lands, NAGPRA requires that the responsible federal agency must be immediately notified by telephone and in writing. Following the receipt of the written notification, the federal agency must certify the receipt of it within 3 days. The activity that resulted in the discovery must be stopped immediately after discovery and may not resume until 30 days after the applicable federal agency certifies the receipt of the notification. The federal agency would also be responsible for taking immediate steps, if necessary, to further secure and protect the remains and/or items that were discovered. During this process, the federal agency would notify any MLDs or applicable Native American tribes of the discovery, obtain written confirmation of the notification, and initiate consultation, if necessary. Following consultation, the federal agency would prepare, approve, and sign a written NAGPRA POA (43 CFR 10.3 and 10.5), which would specify the treatment, care, and handling of the discovered remains and cultural resources. SCE would comply with the applicable regulations to ensure the protection of human remains and burial sites during construction; therefore, impacts to human remains during construction would be less than significant.

5.5.7.3.2 Operations

Less than Significant Impact. O&M activities for transmission lines would include repairing conductors, washing or replacing insulators, repairing or replacing other hardware components, replacing towers, tree trimming, brush and weed control, and access road maintenance. O&M activities would also include routine inspections and emergency repair, which would require the use of vehicles and equipment, and are typically short term in nature. Ground disturbance during O&M activities could occur in previously disturbed or potentially undisturbed but previously surveyed areas. However, O&M activities would have a low potential to encounter human remains, if any are present. If human remains are discovered during O&M activities of the project, work would stop, best management practices similar to those previously outlined would be implemented, and the remains would be treated in accordance with applicable laws. Therefore, any potential impacts would be less than significant.

5.5.8 CPUC Draft Environmental Measures

SCE will, at the direction of the CPUC, implement the following CPUC Draft Environmental Measure during construction of the EPL Project:

5.5 Cultural Resources

Human Remains (Construction and Maintenance)

Avoidance and protection of inadvertent discoveries that contain human remains shall be the preferred protection strategy with complete avoidance of such resources ensured by redesigning the project. If human remains are discovered during construction or maintenance activities, all work shall be diverted from the area of the discovery, and the CPUC shall be informed immediately. The Applicant shall contact the County Coroner to determine whether or not the remains are Native American. If the remains are determined to be Native American, the Coroner will contact the Native American Heritage Commission (NAHC). The NAHC will then identify the person or persons it believes to be the most likely descendant of the deceased Native American, who in turn would make recommendations for the appropriate means of treating the human remains and any associated funerary objects.

If the remains are on federal land, the remains shall be treated in accordance with the Native American Graves Protection and Repatriation Act (NAGPRA). If the remains are not on federal land, the remains shall be treated in accordance with Health and Safety Code Section 7050.5, CEQA Section 15064.5(e), and Public Resources Code Section 5097.98.

5.6 Energy

This Section of the PEA describes the energy-consumption attributes of the EPL Project, as well as an assessment of impacts that have the potential to occur during construction and operation of the EPL Project.

5.6.1 Environmental Setting

As described in Chapter 3—Project Description, construction, and operations and maintenance, of the EPL Project would require the consumption of energy in the form of liquid fuels (gasoline and diesel). Section 5.6.4.3 addresses the estimated volumes of gasoline and diesel consumption associated with construction of the EPL Project.

5.6.1.1 Existing Energy Use

Station light and power equipment at the existing SCE substations included under the EPL Project represent the only existing consumption of electricity by the facilities associated with the EPL Project. Gasoline and diesel fuels consumed during O&M activities represent the only other existing energy use related to the facilities associated with the EPL Project. Line losses are ignored as these do not represent a use of energy, but rather a loss of energy.

5.6.2 Regulatory Setting

Federal, State, and local regulations were reviewed for applicability to the EPL Project.

5.6.2.1 Regulatory Setting

5.6.2.1.1 Federal

There are no Federal plans or regulations applicable to the EPL Project.

5.6.2.1.2 State

5.6.2.1.2.1 State of California

Senate Bill 100, signed into law in September 2018, amends the California Renewables Portfolio Standard Program. The Program requires the CPUC to establish a renewables portfolio standard requiring all retail sellers to procure a minimum quantity of electricity products from eligible renewable energy resources so that the total kilowatt-hours of those products sold to their retail end-use customers achieve 25 percent of retail sales by December 31, 2016, 33 percent by December 31, 2020, 40 percent by December 31, 2024, 50 percent by December 31, 2026, and 60 percent by December 31, 2030. The program additionally requires each local publicly-owned electric utility to procure a minimum quantity of electricity products from eligible renewable energy resources to achieve the procurement requirements established by the program.

5.6.2.1.2.2 State of Nevada

Nevada's Renewable Portfolio Standard ("RPS"), NRS 704.7801, was initially adopted by Nevada's Legislature in 1997. The RPS has been modified nearly every subsequent legislative session. It establishes the percentage of electricity sold by an electric utility to retail customers that must come from renewable sources. More specifically, electric utilities are required to generate, acquire or save with portfolio energy systems or energy efficiency measures, a certain percentage of electricity annually. The RPS requires that for calendar year 2030 and for each calendar year thereafter, not less than 50 percent of

the total amount of electricity sold by the provider to its retail customers in Nevada will be from renewable sources.

5.6.2.1.3 Local

The CPUC has sole and exclusive state jurisdiction over the siting and design of the EPL Project. Pursuant to GO 131-D, Section XIV.B, "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters." Consequently, public utilities are directed to consider local regulations and consult with local agencies, but the county and cities' regulations are not applicable as the county and cities do not have jurisdiction over the EPL Project. Accordingly, the following discussion of local land use regulations is provided for informational purposes only.

5.6.2.1.3.1 San Bernardino County Countywide Plan, Renewable Energy & Conservation Element

The purposes of the Renewable Energy & Conservation Element are to:

- Clarify the County's collective community, environmental, and economic values for RE development and conservation.
- Articulate what the County will strive to achieve and avoid through energy conservation, energy efficiency, and RE development.
- Establish goals and policies to manage RE development and conservation of the natural environment.
- Set a framework for Development Code standards for RE development.

The Element contains numerous goals and policies; none are applicable or relevant to the EPL Project.

5.6.2.1.3.2 City of Hesperia, Climate Action Plan

The City of Hesperia (City) has prepared a Climate Action Plan (CAP) as its primary strategy for ensuring that the buildout of the General Plan Update will not conflict with the implementation of Assembly Bill 32 – the Global Warming Solutions Act of 2006. This CAP is designed to reduce community-related and City operations-related greenhouse gas emissions to a degree that would not hinder or delay implementation of AB 32. The purpose of the CAP is to outline a course of action for the City government and the community of Hesperia to reduce per capita greenhouse gas emissions 29 percent below business as usual by 2020 and adapt to effects of climate change. The Plan contains strategies for use by the City; none are applicable or relevant to the EPL Project.

5.6.2.1.3.3 Clark County (NV), Sustainability and Climate Action Plan: County Operations

This plan is a comprehensive roadmap aimed at increasing the sustainability of the County's internal operations. Through the Plan, the County aims to promote sustainable practices and climate action within the County's operations. Through the development and implementation of codes, policies, and procedures that improve the resilience of its operations, the County improves its ability to serve the community while also serving as a model for sustainable action in the region. The Plan contains strategies for use by the County; none are applicable or relevant to the EPL Project.

5.6.3 Impact Questions

5.6.3.1 Impact Questions

The significance criteria for assessing the impacts to public services are derived from the CEQA Environmental Checklist. According to the CEQA Checklist, a project would cause a potentially significant impact if it would:

- Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?
- Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

5.6.3.2 Additional CEQA Impact Question

The CPUC has identified one additional CEQA impact question:

- Would the project add capacity for the purpose of serving a nonrenewable energy resource?

5.6.4 Impact Analysis

5.6.4.1 Impact Analysis

5.6.4.1.1 Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

5.6.4.1.1.1 Construction

Less than Significant Impact. The EPL Project's consumption of energy resources during construction is necessary to remediate discrepancies identified through SCE's TLRR effort along the 220 kV circuits included in the EPL Project.

The transmission lines, after completion of the construction proposed under the EPL Project, would serve the same purpose in the regional transmission system as the existing lines and would not change the location or intensity of energy consumption during operations.

Construction of the project would require consumption of fuel to run construction vehicles, equipment, and helicopters. However, EPL Project construction activities would be short-term and temporary. Further, as presented in Section 3.13.2, construction vehicle idling time would be minimized, which would further reduce energy consumption. Therefore, impacts would be less than significant.

5.6.4.1.1.2 Operations

No Impact. As presented in Chapter 3, SCE is currently performing O&M activities, including inspections, along the transmission lines included under the EPL Project. No material changes in O&M activities are anticipated with implementation of the EPL Project. No energy additional to that which is presently consumed will be consumed and therefore no impacts would be realized under this criterion during operations and maintenance.

5.6.4.1.2 Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

5.6.4.1.2.1 Construction

No Impact. The EPL Project entails the reconductoring of portions of existing transmission lines in these transmission lines' existing alignments, the replacement of hardware on some towers, and the installation of inter-set structures in the existing alignments. The EPL Project is not designed to facilitate or encourage

renewable energy project development, and because it would be constructed in the existing alignments, it would not impede the development of renewable energy projects. As stated in Section 5.6.2 above, none of the local plans that address energy efficiency are applicable to the EPL Project. Therefore, the EPL Project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

5.6.4.1.2.2 Operations

No Impact. As presented in Chapter 3, SCE is currently performing O&M activities, including inspections, along the transmission lines included under the EPL Project. No material changes in O&M activities are anticipated with implementation of the EPL Project. Therefore, operation of the EPL Project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

5.6.4.1.3 Would the project add capacity for the purpose of serving a nonrenewable energy resource?

5.6.4.1.3.1 Construction

No Impact. Serving a nonrenewable energy resource is not an objective of the EPL Project; therefore, there would be no impact under this criterion.

5.6.4.1.3.2 Operations

No Impact. Serving a nonrenewable energy resource is not an objective of the EPL Project; therefore, there would be no impact under this criterion.

5.6.4.2 Nonrenewable Energy

The EPL Project is not proposed to provide a new interconnection to or to supply a new, renewable, or non-renewable energy project.

The transmission lines included under the EPL Project are extant and are part of SCE's interconnected transmission system. Because SCE operates an interconnected grid, all renewable and non-renewable energy projects connected to any one portion of that grid may be considered to be interconnected to the transmission lines included under the EPL Project. Similarly, all such renewable and non-renewable energy projects may be considered to be supplied by the EPL Project.

5.6.4.3 Fuels and Energy Use

5.6.4.3.1 Total Energy Requirements of the EPL Project by Fuel Type and End Use

Table 5.6-1 provides an estimation of the amount of fuels (gasoline, diesel, and helicopter fuel) that would be used during construction of the EPL Project.

As presented in Chapter 3, SCE is currently performing O&M activities, including inspections, along the transmission lines included under the EPL Project. No material changes in O&M activities are anticipated with implementation of the EPL Project. Therefore, operation of the EPL Project would not result in additional fuel consumption.

Table 5.6-1. Fuel Consumption

Primary Equipment Description	Diesel (gallons)	Gasoline (gallons)	Jet A (gallons)
Worker Vehicles			
Passenger Vehicles	48	20,595	-
Construction Vehicles			
3/4-Ton Truck, 4x4	-	1,996	-
1-Ton Truck, 4x4	11,059	-	-

Table 5.6-1. Fuel Consumption

Primary Equipment Description	Diesel (gallons)	Gasoline (gallons)	Jet A (gallons)
Auger Truck	79	-	-
Boom/Crane Truck	6,071	-	-
Concrete Mixer Truck	46	-	-
Dump Truck	1,448	-	-
Extendable Flat Bed Pole Truck	10	-	-
Flat Bed Pole Truck	137	-	-
Lowboy Truck/Trailer	4,868	-	-
Manlift/Bucket Truck	3,578	-	-
Static Truck/Tensioner	1,978	-	-
Truck, Semi-Tractor	6,900	-	-
Water Truck	3,100	-	-
Wire Truck/Trailer	66	-	-
Construction Equipment			
Backhoe/Front Loader	5,205	-	-
Bull Wheel Puller	15,405	-	-
Compressor Trailer	3,279	-	-
Conductor Splicing Rig	7,816	-	-
Drum Type Compactor	1,707	-	-
Excavator	118	-	-
Fiber Splicing Lab	6,700	-	-
Generator	11,467	-	-
Hydraulic Rewind Puller	30,583	-	-
Motor Grader	6,159	-	-
R/T Crane	1,027	-	-
R/T Forklift	10,841	-	-
Sock Line Puller	6,700	-	-
Track Type Dozer	401	-	-
Helicopter and Support			
Light Helicopter	-	-	47,936
Medium-duty Helicopter	-	-	2,944
Helicopter Support Truck	363	-	-
Jet A Fuel Truck	363	-	-

5.6.4.3.2 Energy Conservation Equipment and Design Features

There is no equipment or design features that are included in the EPL Project that are primarily or solely for energy conservation.

5.6.4.3.3 Energy Supplies That Would Serve the Project

Construction of the EPL Project would not require any new energy supplies; energy necessary during the construction phase would be obtained from existing energy purveyors. Operation of the EPL Project would not result in any increased energy demand compared to the energy demand associated with the operation of the existing EPL Project infrastructure.

5.6.5 CPUC Draft Environmental Measures

There are no CPUC Draft Environmental Measures identified for Energy.

5.7 Geology, Soils, and Paleontological Resources

This Section of the PEA describes the geology and soils in the area of the EPL Project. The potential impacts are also discussed.

5.7.1 Environmental Setting

5.7.1.1 Regional and Local Geologic Setting

The EPL Project is located entirely within the Mojave Desert Geologic Province. This Province is characterized by narrow mountain ranges, generally trending north-south or northwest-southeast, which are separated by roughly parallel basins.

5.7.1.1.1 Physiography

The principal physiographical features crossed by Segments of the EPL Project are shown in Figure 5.7-1 and described below.

5.7.1.1.1.1 Segments 1 and 2

Segments 1 and 2 runs for approximately 66 and 67 miles, respectively, in a generally southwest-northeast direction, between the Lugo Substation and Pisgah Switchyard. Segments 1 and 2 include the Lugo-Pisgah No.1 and No.2 220 kV transmission lines; the two lines run adjacent and parallel to one another throughout most of Segments 1 and 2. However, they diverge in the central part of the Segments, where they are separated by a maximum distance of approximately 5 miles.

The southwestern termini of Segments 1 and 2 is at the Lugo Substation. This substation is located at an elevation of about 3,750 ft msl in the Upper Mojave River Valley, near the southwestern edge of the Mojave Desert Geologic Province. It lies approximately 3 miles northeast of the San Bernardino Mountains, which represent the Transverse Ranges Geologic Province.

The EPL Project alignment runs generally to the northeast from the Lugo Substation, gradually decreasing in elevation. It crosses the California Aqueduct East Branch at an elevation of approximately 3,475 ft msl, the Antelope Valley Wash at an elevation of approximately 3,175 feet msl, and then the Mojave River bed at an elevation of approximately 2,900 ft msl.

After crossing the Mojave River, the EPL Project alignment continues to the northeast across the Upper Mojave River Valley, gradually increasing in elevation. It passes to the north of the San Bernardino Mountains, then crosses Fifteen Mile Valley to reach the Rabbit Dry Lake Bed at the foot of the Granite Mountains. The Lugo-Pisgah No.1 and No.2 transmission lines begin to diverge in this area.

Both transmission lines cross a narrow arm of the Granite Mountains at a maximum elevation of approximately 3,500 ft msl, and then descend into Lucerne Valley. The two transmission lines then diverge further in the vicinity of the Lucerne Dry Lake Bed.

The northern transmission line (Lugo-Pisgah No.1) runs to the north of the Lucerne Dry Lake Bed. It crosses North Lucerne Valley, passing scattered hills associated with the Ord Mountains to the north and the Fry Mountains to the south. The northern line reaches a maximum elevation of approximately 4,300 ft msl in this area, which represents the highest point along Segment 1. It then descends from the Fry Mountains into Bessemer Valley.

The southern transmission line (Lugo-Pisgah No.2) runs to the south of the Lucerne Dry Lake Bed. It crosses California State Highway 247 to the southeast of the lake bed, then runs across the central part of

Lucerne Valley. It subsequently passes through the Fry Mountains, reaching a maximum elevation of approximately 3,850 ft msl. It then descends into the northern end of Upper Johnson Valley, and then reaches Bessemer Valley. The northern and southern transmission lines converge near the northeastern side of Bessemer Valley.

The EPL Project alignment then rises into an upland area formed by the Rodman and Iron Ridge mountains. It crosses a small valley within this area, which the California Department of Water Resources (CDWR) has identified as the Iron Ridge Area Groundwater Basin.

The EPL Project alignment then descends from the Rodman Mountains onto a broad plain associated with the Lower Mojave River Groundwater Basin and the Lavic Valley Groundwater Basin. Lavic Lake Volcanic Field, which is currently regarded as inactive, is located on this plain. Segments 1 and 2 run across the plain and the volcanic field, then cross Interstate 40 to terminate at the Pisgah Switchyard. The Pisgah Switchyard is located in the central part of the plain at an elevation of approximately 2,100 ft msl, which represents the lowest point along Segments 1 and 2.

5.7.1.1.1.2 Segments 3 and 4

Segments 3 and 4 include the Cima-Eldorado-Pisgah No.1 and No.2 220 kV transmission lines. These segments run for approximately 82 and 83 miles, respectively, in a generally southwest-northeast direction between the Pisgah Switchyard and the California/Nevada stateline, including the intermediate Cima Substation. The Cima-Eldorado-Pisgah No.1 and No.2 lines run adjacent and parallel to one another throughout most of Segments 3 and 4 but diverge slightly in a few areas.

Segments 3 and 4 begin at the Pisgah Switchyard. They continue northeast across the Lavic Valley Groundwater Basin, cross a ridge between the Cady and Sleeping Beauty mountains, and descend into the Broadwell Valley. The EPL Project alignment then climbs between the Cady and Bristol mountains, and descends into Soda Lake Valley.

The EPL Project alignment runs northeast across Soda Lake Valley, near the foot of the Bristol Mountains. It descends to an elevation of approximately 1,125 ft msl at a railroad crossing, which represents the lowest elevation in Segments 3 and 4, and along the entire EPL Project alignment.

Segments 3 and 4 continue to the northeast across “Devil’s Playground”, a valley area noted for sand dunes and salt flats. The EPL Project alignment then climbs steeply up Old Dad Mountain, and continues to rise in elevation as it passes the Kelso Mountains and reaches the Kelso Valley. The EPL Project alignment then crosses the northern edge of the Marl Mountains and enters the Ivanpah Valley. The Cima Substation is located within the Ivanpah Valley, at an elevation of approximately 4,425 ft msl.

Segments 3 and 4 continue to the northeast across the Ivanpah Valley, ending at the California/Nevada stateline.

5.7.1.1.1.3 Segments 5 and 6

Segments 5 and 6 include the Cima-Eldorado-Pisgah No.1 and No.2 220 kV transmission lines. These segments run for approximately 27 miles in a generally southwest-northeast direction between the stateline and Eldorado Substation.

Segments 5 and 6 begin at the California/Nevada stateline, and then cross Nevada State Highway 164 at the eastern end of the Ivanpah Valley. Segments 5 and 6 then climb between the southern end of the McCullough Range and the northern end of the New York Mountains, reaching a maximum elevation of approximately 5,050 ft msl, which is the highest point of the EPL Project.

The EPL Project alignment then descends into the western end of the Piute Valley. Segments 5 and 6 ascend from the Piute Valley, cross a pass between the McCullough Range and the Highland Range, then descend into the Eldorado Valley. The northeastern terminus of the EPL Project is at the Eldorado Substation, which is located within the valley at an elevation of approximately 1,800 ft msl.

5.7.1.2 Seismic Hazards

5.7.1.2.1 Faults and Seismicity

The EPL Project alignment crosses or runs close to numerous active or potentially active (Quaternary) faults as identified by the USGS (USGS 2022a), particularly in Segments 1 and 2. Active and potentially active faults within 10 miles of the project are shown in Figure 5.7-2.

The most significant seismic risks are associated with the youngest faults, which have shown evidence of activity within the past 15,000 years; such faults are termed "active". On Figure 5.7-2, the faults designated as "Historic" or "Latest Quaternary" represent active faults. The active faults within 10 miles of the project are summarized in Table 5.7-1; this includes information regarding fault type, fault and section length, slip rate, and maximum estimated moment magnitude.

Other Quaternary faults shown on Figure 5.7-2 have shown evidence of activity within the past 1.6 million years, but not within the past 15,000 years. These older faults are termed "potentially active".

The active and potentially active faults located within 10 miles of the EPL Project are discussed in more detail below. Segments 1 and 2, and segments 3 through 6, are discussed separately; faults are listed under the closest Segment.

5.7.1.2.1.1 Segments 1 and 2

Most of the active faults in the vicinity of Segments 1 and 2 are right-lateral strike-slip faults which trend in a roughly southeast-to-northwest direction, and which run roughly parallel to one another. Segments 1 and 2 run roughly southwest-to-northeast, or approximately normal to the trend of the faults, and cross them in sequence. Active faults crossed by Segments 1and 2 are listed below, ordered from southwest to northeast:

- **North Frontal thrust system, Western section.** Segments 1 and 2 cross an active strand of the North Frontal thrust system at the foot of the San Bernardino Mountains to the east of the Mojave River. This is the only active fault system crossed by Segments 1 and 2 that is not a right-lateral strike-slip fault, and that does not trend generally southeast-to-northwest.
- **Helendale-South Lockhart fault zone, Helendale section.** The Lugo-Pisgah No.1 and No.2 220 kV transmission lines are divergent in this area. The two lines separately cross this active right-lateral strike-slip fault zone at the western end of Lucerne Valley.
- **Lenwood-Lockhart fault zone, Lenwood section.** The Lugo-Pisgah No.1 and No.2 220 kV transmission lines are divergent in this area. The two lines separately cross this active right-lateral strike-slip fault zone near the eastern end of Lucerne Valley.

Johnson Valley fault zone, Northern Johnson Valley section. The Lugo-Pisgah No.1 and No.2 220 kV transmission lines are divergent in this area. Segment 2 crosses this active right-lateral strike-slip fault zone at the northwestern end of Upper Johnson Valley. This fault zone has not been identified further north at Segment 1. Some parts of the Northern Johnson Valley section were historically active during the 1992 Landers earthquake. The area of the project crossing was not active during that event, but activity was documented approximately 7.7 miles to the southeast.

Table 5.7-1. Mapped Active Faults and Fault Properties

Closest Project Segment	USGS Fault Name (USGS Section Name)	Fault Activity	Fault Type	Fault Length (Section Length) (miles)	Slip Rate (mm/yr)	Maximum Moment Magnitude	Distance to EPL Project Alignment (Miles)
1, 2	San Jacinto Fault (San Bernardino Valley section)	active (<15,000 years BP)	right-lateral	152 (32)	> 5.0	6.9 – 7.1	9.4
1, 2	San Andreas Fault Zone (Mojave section)	historically active (1857)	right-lateral	674 (70)	> 5.0	7.2 – 7.3	9.0
1, 2	San Andreas Fault Zone (San Bernardino Mountains section)	active (<15,000 years BP)	right-lateral	674 (80)	> 5.0	6.6 – 6.9	8.2
1, 2	North Frontal thrust system (Western section)	active (<15,000 years BP)	thrust	42 (24)	0.2 – 1.0	7.1 – 7.2	0
1, 2	Helendale-South Lockhart fault zone (Helendale section)	active (<15,000 years BP)	right-lateral	84 (39)	0.2 – 1.0	7.3 – 7.4	0
1, 2	Silver Reef fault	active (<15,000 years BP)	right-lateral	7	unspecified	unspecified	6.7
1, 2	Old Woman Springs fault	active (<15,000 years BP)	right-lateral	9	unspecified	7.4 – 7.5	6.3
1, 2	Lenwood-Lockhart fault zone (Lenwood section)	active (<15,000 years BP)	right-lateral	88 (46)	0.2 – 1.0	7.4 – 7.5	0
1, 2	Johnson Valley fault zone (Northern Johnson Valley section)	historically active (1992)	right-lateral	32 (20)	0.2 – 1.0	6.7 – 6.9	0
1, 2	Camp Rock-Emerson-Copper Mountain fault zone (Emerson section)	historically active (1992)	right-lateral	58 (38)	0.2 – 1.0	6.9 – 7.1	0
1, 2	Camp Rock-Emerson-Copper Mountain fault zone (Camp Rock section)	historically active (1992)	right-lateral	58 (19)	0.2 – 1.0	6.9 – 7.1	0
1, 2	Homestead Valley fault zone	historically active (1992)	right-lateral	19	0.2 – 1.0	unspecified	8.3
1, 2	Calico-Hidalgo fault zone (West Calico section)	active (<15,000 years BP)	right-lateral	73 (43)	0.2 – 1.0	7.4	0
1, 2	Calico-Hidalgo fault zone (Calico section)	active (<15,000 years BP)	right-lateral	73 (39)	0.2 – 1.0	7.4	0.3
1, 2	Pisgah-Bullion fault zone (Pisgah section)	active (<15,000 years BP)	right-lateral	60 (20)	0.2 – 1.0	7.2 – 7.3	0
1, 2	Pisgah-Bullion fault zone	active	right-lateral	60	0.2 – 1.0	7.2 – 7.3	8.1

Table 5.7-1. Mapped Active Faults and Fault Properties

Closest Project Segment	USGS Fault Name (USGS Section Name)	Fault Activity	Fault Type	Fault Length (Section Length) (miles)	Slip Rate (mm/yr)	Maximum Moment Magnitude	Distance to EPL Project Alignment (Miles)
	(Bullion section)	(<15,000 years BP)		(12)			
1, 2	Lavic Lake fault	historically active (1999)	right-lateral	25	0.2 – 1.0	unspecified	0
3, 4	Unnamed fault east of Pisgah	historically active (date unspecified)	unspecified	approximately 1.4	unspecified	unspecified	3.6
5, 6	Black Hills Fault	active (<15,000 years BP)	normal	5.6	< 0.2	unspecified	6.5

Source: Data from USGS (2022a, 2022b)

- **Camp Rock-Emerson-Copper Mountain fault zone, Emerson section.** The Lugo-Pisgah No.1 and No.2 220 kV transmission lines are divergent in this area. The two lines separately cross this active right-lateral strike-slip fault zone near along the southwestern side of Bessemer Valley; both crossings were historically active during the 1992 Landers earthquake.
- **Camp Rock-Emerson-Copper Mountain fault zone, Camp Rock section.** The Lugo-Pisgah No.1 and No.2 220 kV transmission lines are slightly divergent in this area; they converge approximately one mile to the northeast. The two lines separately cross this active right-lateral strike-slip fault zone on the northeastern side of Bessemer Valley; both crossings were historically active during the 1992 Landers earthquake.
- **Calico-Hidalgo fault zone, West Calico section.** Segments 1 and 2 cross this active right-lateral strike-slip fault zone in a small valley between the Rodman and Iron Ridge Mountains.
- **Pisgah-Bullion fault zone, Pisgah section.** Segments 1 and 2 cross this active right-lateral strike-slip fault zone in a valley area approximately 4.1 miles southwest of the Pisgah Switchyard.
- **Lavic Lake fault.** Segments 1 and 2 cross this active right-lateral strike-slip fault in a valley area approximately 1.7 miles southwest of the Pisgah Switchyard; the crossing area was historically active during the 1999 Hector Mine earthquake.

Other active faults are located within 10 miles of Segments 1 or 2, although they are not crossed by the Segments. They include the following faults, ordered from southwest to northeast:

- **San Jacinto fault, San Bernardino Valley section.** The closest parts of this active right-lateral strike-slip fault are located in the San Gabriel Mountains, approximately 9.4 miles southwest of the Lugo Substation.
- **San Andreas fault zone, Mojave section.** The closest parts of this active right-lateral strike-slip fault zone are located on the northern side of San Gabriel Mountains, approximately 9.0 miles southwest of the Lugo Substation. The major 1857 Fort Tejon earthquake occurred along this section of the fault zone.
- **San Andreas fault zone, San Bernardino Mountain section.** The closest parts of this active right-lateral strike-slip fault zone are located on the southern side of the San Bernardino Mountains, approximately 8.2 miles southwest of the Lugo Substation.
- **Silver Reef fault.** The closest parts of this small active right-lateral strike-slip fault zone are located in the Lucerne Valley, approximately 6.7 miles southeast of Segment 2.
- **Old Woman Springs fault.** The closest parts of this small active right-lateral strike-slip fault zone are located in the Lucerne Valley, approximately 6.3 miles southeast of Segment 2.
- **Homestead Valley fault zone.** The closest parts of this active right-lateral strike-slip fault zone are located on the east side of the Upper Johnson Valley, approximately 8.3 miles southeast of Segment 2. This fault zone was historically active during the 1992 Landers earthquake.
- **Calico-Hidalgo fault zone, Calico section.** The closest parts of this active right-lateral strike-slip fault zone are located on the west side of the Rodman Mountains, approximately 0.3 miles north of Segments 1 and 2.

- **Pisgah-Bullion fault zone, Bullion section.** The closest parts of this active right-lateral strike-slip fault zone are located on the west side of the Bullion Mountains, approximately 8.1 miles southeast of Segments 1 and 2.

Several potentially active faults have been mapped within 10 miles of Segments 1 and 2. Potentially active faults are less studied than the active faults, and the available information is more limited.

The only potentially active fault crossed by Segments 1 and 2 is the Rodman fault, located on the east side of the Rodman Mountains, between the active Calico-Hidalgo and Pisgah Bullion fault zones. The Rodman fault, like the neighboring fault zones, is a right-lateral strike-slip fault trending approximately southeast-northwest, but it has not shown documented evidence of activity within the past 15,000 years, and is therefore not classified as active.

Several other potentially active faults occur to the south within 10 miles to the south of Segments 1 and 2 in the San Bernardino Mountains. They include the Cleghorn fault zone (Northern and Southern sections), the Waterman Canyon fault zone, the Tunnel Ridge fault, the Arrastre Canyon Narrows fault, the Bowen Ranch fault, and the North Frontal thrust system, Eastern section. Segments 1 and 2 do not cross any of these potentially active faults; the closest is the Bowen Ranch fault, which runs within approximately 1.5 miles of Segments 1 and 2 between the Mojave River and the Granite Mountains.

5.7.1.2.1.2 Segments 3, 4, 5 and 6

In general, Segments 3 through 6 are more remote and less seismically active than the area along Segments 1 and 2. The faults in this area are less studied than those in Segments 1 and 2, and the available data is more limited.

Segments 3 through 6 do not cross any active faults. Two active faults have been identified within 10 miles of these segments:

- **Unnamed fault east of Pisgah.** A small, unnamed active fault has been identified to the southeast of the Pisgah Switchyard on the north side of Interstate 40, approximately 3.6 miles to the southeast of Segments 3 and 4. The fault is classified as historically active, but no further details are available.
- **Black Hills Fault.** The closest parts of this active normal fault are located on the southeastern side of the Black Hills, approximately 6.5 miles north of Eldorado Substation.

Segments 3 and 4 cross several potentially active faults, including two unnamed faults in the Cady Mountains area, the Ludlow fault in the Broadwell Valley area, and the Baker fault in the Devil's Playground area.

Other potentially active faults located within 10 miles of Segments 3 and 4 include the Cady fault and other unnamed faults in the Cady Mountains, an unnamed fault in the Sleeping Beauty Mountains, unnamed faults in the Bristol Mountains, and the Stateline fault.

5.7.1.2.2 Surface Fault Rupture

There is a risk of surface fault rupture associated with the active faults found along the EPL Project alignment. The State of California has established "Alquist-Priolo Special Studies Zones" (AP SSZs) in areas where such faults pose a risk of surface displacement (CGS 2022). Segment 1 of the project passes through several SSZs (Figure 5.7-3) associated with the following active fault crossings:

- **North Frontal thrust system, Western section.** Segments 1 and 2 cross an SSZ associated with this thrust system at the foot of the San Bernardino Mountains to the east of the Mojave River.
- **Helendale-South Lockhart fault zone, Helendale section.** Segments 1 and 2 cross two closely-spaced SSZs associated with this fault zone at the western end of Lucerne Valley.
- **Lenwood-Lockhart fault zone, Lenwood section.** Segments 1 and 2 cross an SSZ associated with this fault zone near the eastern end of Lucerne Valley.
- **Johnson Valley fault zone, Northern Johnson Valley section.** Segment 2 crosses an SSZ associated with this fault zone at the northwestern end of Upper Johnson Valley. The SSZ does not affect Segment 1.
- **Camp Rock-Emerson-Copper Mountain fault zone, Camp Rock section.** Segments 1 and 2 separately cross an SSZ associated with this fault zone on the northeastern side of Bessemer Valley.
- **Calico-Hidalgo fault zone, West Calico section.** Segments 1 and 2 cross an SSZ associated with this fault zone in a small valley between the Rodman and Iron Ridge Mountains.
- **Pisgah-Bullion fault zone, Pisgah section.** Segments 1 and 2 cross an SSZ associated with this zone in a valley area approximately 4.1 miles southwest of the Pisgah Switchyard.
- **Lavic Lake fault.** Segments 1 and 2 crosses an SSZ associated with this zone in a valley area approximately 1.7 miles southwest of the Pisgah Switchyard.

There may also be a risk of surface fault rupture in other areas, outside of Alquist-Priolo Zones, where active faults have not been identified or are incompletely studied. For example, an SSZ associated with the Calico-Hidalgo fault zone, Calico section trends towards Segments 1 and 2 on the western side of the Rodman Mountains. The southern termination of this zone, as currently mapped, is only about 700 feet north of the EPL Project alignment.

5.7.1.2.3 Seismic Ground Shaking

The expected long period (1.0 second) ground motions with a 2 percent exceedance probability in 50 years, based on Branum et al. (2016) and CGS (2016), are shown on Figure 5.7-4. This represents a recurrence interval of approximately 2,500 years. The estimate was calculated considering historical earthquakes, slip rates on major faults and deformation throughout the region, and the potential for amplification of seismic waves by near-surface geologic materials.

The estimated ground motions are generally higher in areas near active faults, and in valley areas filled with unconsolidated Quaternary alluvium. The estimated ground motions are generally lower in areas further from active faults, and in mountainous areas with consolidated bedrock.

The highest estimated ground motions along the EPL Project alignment are generally associated with Segments 1 and 2, which run across or near numerous active faults. The maximum estimated ground motion values along the EPL Project alignment, up to 105 percent of standard gravity (or 1.05 g), occur at the southwestern end of the EPL Project alignment, in the vicinity of the Lugo Substation. Relatively high ground motion values, up to 95 percent of standard gravity (or 0.95 g), occur in valley areas throughout Segments 1 and 2.

There are relatively few active faults in close proximity to Segments 3 and 4, and the estimated ground motions are generally lower. The estimated ground motion values are as low as 0.15 g in mountainous areas of Segments 3 and 4.

Along Segment 5 and Segment 6 in Nevada, the expected long period (1.0 second) ground motions associated with a 2-percent exceedance probability in 50 years are relatively low, at approximately 0.15 g (Nevada Bureau of Mines and Geology [NBMG] 2018). These expected motions have not been adjusted for local geologic materials, as they are in California.

5.7.1.2.4 Liquefaction

Liquefaction occurs where strong ground motions produce a rise in pore-water pressures that in turn causes granular material to briefly lose strength and liquefy. This can lead to settlement, lateral spreading, and damage to structures, even in areas of flat topography. Ground motions in excess of 0.1g can potentially trigger liquefaction in areas of unconsolidated granular sediment and shallow groundwater (Southern California Earthquake Center 1999). The risk of liquefaction is highest in valley areas with high predicted ground motions, unconsolidated sediments, and shallow groundwater.

There is a potential risk of ground motions above 0.1 g throughout the EPL Project area, and the local valleys may contain unconsolidated granular sediments. However, most of the EPL Project area is not characterized by shallow groundwater. The absence of shallow groundwater reduces the local liquefaction risk.

No high-resolution liquefaction hazard maps were found for the EPL Project area. Regional liquefaction susceptibility zones were mapped at low resolution by USGS (2008) and San Bernardino County (2011). In general, the mountainous areas throughout the EPL Project area were considered to have low or no susceptibility to liquefaction, while the valley areas were considered to have low to moderate susceptibility.

The available low-resolution mapping for California shows a few relatively small areas of "high" or "very high" liquefaction susceptibility near the western end of Segments 1 and 2. These areas of elevated liquefaction risk appear to be associated with the Mojave River, the Rabbit Dry Lake Bed, and the Lucerne Dry Lake Bed; these are areas that could potentially contain surface water or shallow groundwater, particularly after rain events. The EPL Project alignment runs across or near each of these three features.

High liquefaction areas along the EPL Project alignment in Nevada are mapped by Clark County (2018). No high liquefaction areas were identified near the EPL Project alignment.

5.7.1.2.5 Slope Instability

Much of the EPL Project alignment is located in valley areas. The hazards of landslides, rockfalls, slope creep, or other slope-related concerns are low to absent in these areas, as they are characterized by relatively flat topography.

The susceptibility to deep-seated landslides, based on Wills et al. (2011) and CGS (2018), is shown in Figure 5.7-5. The estimated values indicate the relative likelihood of deep landsliding based on regional estimates of rock strength and steepness of slopes. Localized areas of relatively steep slopes and increased landslide hazards occur where the EPL Project alignment runs along the edges of hills and mountains.

The greatest risks of earthquake-induced landslides along the EPL Project alignment appear to be in those parts of Segments 1 and 2 that run within, or near the base of, the San Bernardino, Ord, and Rodman mountains. These areas are characterized by a combination of proximity to steep slopes (Figure 5.7-5), proximity to Holocene faults (Figure 5.7-2), and relatively high ground shaking potential (Figure 5.7-4). While Segments 3 and 4 also have areas of steep slopes, there are no active faults in this area and the ground shaking potential is generally lower.

5.7.1.2.6 Soil Erosion

The USDA has developed a rating, known as the "erodibility factor" or "K-factor" to evaluate the susceptibility of soils to erosion by water. All soils along the EPL Project alignment have low to moderate K-factor ratings (0.4 or lower).

Wind erosion is similarly most prevalent in silty and fine sandy soils with disturbed vegetation. Wind erodibility groups (WEGs) are made up of soils that have similar properties affecting their susceptibility to wind erosion. The soils assigned to WEG 1 are the most susceptible to wind erosion, and those assigned to Group 8 are the least susceptible. Table 5.7-4 presents the relative WEG presence of soils along the EPL Project alignment.

5.7.1.2.7 Collapsible Soils

Soil collapse occurs when water enters the void space between soil particles and weakens the bonds between particles. The weight of overlying soils or structures causes the soil particles to shift, filling the voids, resulting in a reduced overall soil volume. Collapse of the soil at depth is translated to downward motion of the surface, causing differential settlement. Soils susceptible to collapse typically contain a large amount of void space (porosity), low bulk density, low clay content (less than 30 percent and most commonly 10 to 15 percent), and have formed rapidly in arid or semiarid climates, especially on alluvial fans (Scheffe and Lacy 2004). No records of soil collapse were identified near the EPL Project alignment.

5.7.1.2.8 Expansive Soils

An expansive soil is any soil that is prone to large volume changes (shrinking and swelling) directly related to changing moisture conditions. The swelling capacity can cause heaving or lifting of structures whilst shrinkage can cause differential settlement.

Linear extensibility percent is the linear expression of the volume difference of natural soil. The linear extensibility percent of a soil is used to identify shrink-swell classes as follows: Low (<3), Moderate (3-6), High (6-9), and Very High (>9). Approximately 1.2 percent of the soils along the EPL Project alignment are classified as High; none are classified as Very High.

5.7.1.2.9 Subsidence

Land subsidence associated with groundwater overdraft is a concern in many valley areas in California. The project crosses parts of ten groundwater basins recognized by the California Department of Water Resources (DWR). These basins and the "overall estimated potential for future subsidence" as rated by CDWR (2014) are listed in Table 5.7-2.

Table 5.7-2. Groundwater Basins and Subsidence Potential

Project Segment(s)	CDWR Groundwater Basin	CDWR Basin No.	Future Subsidence Potential (CDWR 2014)
1 and 2	Upper Mojave River Valley	6-42	High
1 and 2	Lucerne Valley	7-19	Medium to High
1 and 2	Bessemer Valley	7-15	Insufficient Data
1 and 2	Iron Ridge Valley	7-50	Insufficient Data
1 and 2	Lower Mojave River Valley	6-40	High
1, 2, 3, and 4	Lavic Valley	7-14	Insufficient Data
3 and 4	Broadwell Valley	6-32	Insufficient Data
3 and 4	Soda Lake Valley	6-33	Insufficient Data
3 and 4	Kelso Valley	6-31	Insufficient Data
3 and 4	Ivanpah Valley	6-30	Insufficient Data

The EPL Project areas with the greatest documented subsidence potential are associated with large valley areas in Segments 1 and 2, including the Upper Mojave River Valley, the Lower Mojave River Valley, and the Lucerne Valley. However, many of the groundwater basins crossed by the EPL Project alignment, including all of the basins in San Bernardino County along Segments 3 and 4, are relatively remote and unpopulated, and were deemed to have "insufficient data" for estimation of subsidence potential. CDWR (2014) classified basins as having "insufficient data" if there were fewer than two long-term groundwater monitoring wells per 100 square miles of basin area.

Segments 1 and 2 diverge at the western end of Lucerne Valley, and run on either side of the Lucerne Dry Lake bed. Between 1992 and 2009, nearly 11 inches of subsidence was documented at Lucerne Dry Lake, at rates of about 0.5 to 0.7 inches per year. The subsidence was associated with a decline in groundwater elevations. Ground fissures have been observed southeast of Lucerne Dry Lake; these fissures reportedly caused damage to California State Highway 247 (Brandt and Sneed 2017). Segment 2 crosses California State Highway 247 to the southeast of Lucerne Dry Lake, and is located near the areas affected by fissures.

In Clark County, land subsidence associated with groundwater overdraft has been documented in the Las Vegas Valley (Clark County 2018). Land subsidence has not been documented along Segments 5 and 6 in Nevada.

5.7.1.3 Geologic Units

Geologic units along the EPL Project alignment are summarized in Table 5.7.3, based on U.S. Geological Survey (USGS 2018) generalized maps for California (Figure 5.7-6)

Table 5.7-3. Mapped Geological Units

Project Segment	General Location	Rock Type
1 and 2	Valley areas	Pliocene to Holocene alluvium and terrace deposits
1 and 2	Granite, Ord, Fry, Rodman, and Iron Ridge Mountains	Primarily Mesozoic granodiorite and quartz monzonite
1 and 2	Ord Mountains, Fry Mountains	Mesozoic felsic and intermediate volcanic rock
1 and 2	Fry Mountains	Late Proterozoic to Jurassic limestone and mudstone
1 and 2	Lavic Lake Volcanic Field	Holocene tephrite and basalt
3 and 4	Valley areas	Pliocene to Holocene alluvium and terrace deposits
3 and 4	Cady, Bristol, Kelso, and Marl Mountains	Primarily Mesozoic granodiorite and quartz monzonite
3 and 4	Cady Mountains	Tertiary rhyolite and basalt
3 and 4	Cady Mountains	Miocene to Pleistocene sandstone and conglomerate
3 and 4	Devil's Playground	Quaternary dune sand and lake deposits
3 and 4	Kelso Mountains	Mississippian to Early Permian limestone and mudstone
3 and 4	Kelso Mountains	Miocene to Pleistocene sandstone and conglomerate
3 and 4	Kelso and Marl Mountains	Early Proterozoic to Miocene gneiss and granitoids
5 and 6	McCullough and Highland Ranges	Early Proterozoic gneiss and schist, Miocene andesite and latite

5.7.1.4 Soils

The soil types occurring along the EPL Project alignment where work would occur, as mapped in the SSURGO database, are listed in Table 5.7-4; their distribution along the EPL Project alignment is shown in Figure 5.7-7.

Table 5.7-4. Mapped Soil Units and Soil Properties

Soil Description			Soil Occurrence on EPL Alignment			Soil Properties			
Soil Map Unit	Soil Map Unit Key	Map Unit Name	EPL Segments with Soil	EPL Length with Soils (miles)	EPL Line Percentage with Soil	Hydrologic Group	Wind Erodibility Group	Wind Erodibility Index	Linear Extensibility Percent*
100	463919	ARIZO GRAVELLY LOAMY SAND, 2 TO 9 PERCENT SLOPES	1	0.5	0.2%	A	2	134	1.5
104	463923	BOUSIC CLAY	1	3.2	0.9%	C	4	86	7.5
106	463925	BRYMAN LOAMY FINE SAND, 2 TO 5 PERCENT SLOPES	1	0.8	0.2%	C	2	134	3
107	463926	BRYMAN LOAMY FINE SAND, 5 TO 9 PERCENT SLOPES	1	2.0	0.6%	C	2	134	3
110	463929	BRYMAN-CAJON ASSOCIATION, ROLLING*	1	1.9	0.5%	C	1	220	2.1
112	463931	CAJON SAND, 0 TO 2 PERCENT SLOPES	1	1.1	0.3%	A	1	220	1.5
113	463932	CAJON SAND, 2 TO 9 PERCENT SLOPES	1	2.7	0.8%	-	-	-	1.5
115	463934	CAJON GRAVELLY SAND, 2 TO 15 PERCENT SLOPES	1	3.6	1.0%	A	1	220	1.5
119	463938	CAJON-WASCO, COOL COMPLEX, 2 TO 9 PERCENT SLOPES*	1	2.1	0.6%	A	1	220	1.5
123	463942	DUNE LAND	1	0.2	0.0%	-	-	-	-
125	463944	GLENDALE VARIANT SILT LOAM, SALINE-ALKALI	1	1.6	0.5%	-	-	-	3
130	463949	HAPLARGIDS-CALCIORTHIDS COMPLEX, 15 TO 50 PERCENT SLOPES	1	0.4	0.1%	-	-	-	-
131	463950	HELENDALE LOAMY SAND, 0 TO 2 PERCENT SLOPES	1	0.3	0.1%	A	2	134	1.5
132	463951	HELENDALE LOAMY SAND, 2 TO 5 PERCENT SLOPES	1	2.2	0.6%	A	2	134	1.5
133	463952	HELENDALE-BRYMAN LOAMY SANDS, 2 TO 5 PERCENT SLOPES*	1	1.2	0.3%	A	2	134	1.5
134	463953	HESPERIA LOAMY FINE SAND, 2 TO 5 PERCENT SLOPES	1	6.3	1.8%	A	2	134	1.5
135	463954	JOSHUA LOAM, 2 TO 5 PERCENT SLOPES	1	0.0	0.0%	B	5	56	2.4
137	463956	KIMBERLINA LOAMY FINE SAND, COOL, 0 TO 2 PERCENT SLOPES	1	2.2	0.6%	A	2	134	1.9

Table 5.7-4. Mapped Soil Units and Soil Properties

Soil Description			Soil Occurrence on EPL Alignment			Soil Properties			
Soil Map Unit	Soil Map Unit Key	Map Unit Name	EPL Segments with Soil	EPL Length with Soils (miles)	EPL Line Percentage with Soil	Hydrologic Group	Wind Erodibility Group	Wind Erodibility Index	Linear Extensibility Percent*
139	463958	KIMBERLINA GRAVELLY SANDY LOAM, COOL, 2 TO 5 PERCENT SLOPES	1	1.1	0.3%	A	5	56	1.5
140	463959	LAVIC LOAMY FINE SAND	1	0.3	0.1%	B	2	134	1.5
141	463960	LOVELACE LOAMY SAND, 5 TO 9 PERCENT SLOPES	1	1.6	0.5%	A	1	220	1.5
142	463961	LUCERNE SANDY LOAM, 0 TO 2 PERCENT SLOPES	1	2.2	0.6%	A	3	86	1.5
143	463962	LUCERNE SANDY LOAM, 2 TO 5 PERCENT SLOPES	1	13.1	3.7%	A	3	86	1.5
150	468828	Hypoint gravelly sandy loam, 0 to 4 percent slopes	2	6.5	1.9%	A	5	56	0.7
154	463973	PETERMAN CLAY	1	1.0	0.3%	C	4	86	7.5
155	463974	PITS	1	0.0	0.0%	-	-	-	-
156	463975	PLAYAS	1	1.0	0.3%	-	-	-	-
157	463976	RIVERWASH	1	0.4	0.1%	-	-	-	-
158	463977	ROCK OUTCROP-LITHIC TORRIORTHENTS COMPLEX, 15 TO 50 PERCENT SLOPES*	1	2.6	0.7%	-	-	-	-
159	463978	ROSAMOND LOAM, SALINE-ALKALI	1	0.2	0.1%	C	5	56	3.5
173	463992	WASCO SANDY LOAM, COOL, 0 TO 2 PERCENT SLOPES	1	6.8	2.0%	A	3	86	1.5
174	463993	WASCO SANDY LOAM, COOL, 2 TO 5 PERCENT SLOPES	1	1.9	0.5%	A	3	86	1.5
178	463999	WATER	1	0.1	0.0%	-	-	-	-
297	466840	Arizo-Hypoint-Olympus complex, 2 to 8 percent slopes	1	0.5	0.1%	A	3	86	1
3201	1403447	Dalvord-Rock outcrop association, 15 to 75 percent slopes	1	5.4	1.6%	-	-	-	1
3212	1403450	Dalvord-Angelpoint-Rock outcrop association, 15 to 75 percent slopes	1	0.1	0.0%	-	-	-	1
3230	1403452	Lavabed-Dalvord association, 8 to 50 percent slopes	1	1.4	0.4%	D	8	0	0.1
3240	1403444	Langwell-Rock outcrop association, 4 to 30 percent slopes	1	0.3	0.1%	-	-	-	1.5
3516	1403464	Arizo association, flooded, 2 to 4 percent slopes	1	1.3	0.4%	-	-	-	1.5

Table 5.7-4. Mapped Soil Units and Soil Properties

Soil Description			Soil Occurrence on EPL Alignment			Soil Properties			
Soil Map Unit	Soil Map Unit Key	Map Unit Name	EPL Segments with Soil	EPL Length with Soils (miles)	EPL Line Percentage with Soil	Hydrologic Group	Wind Erodibility Group	Wind Erodibility Index	Linear Extensibility Percent*
3519	1403510	Arizo-Burntshack association, 2 to 8 percent slopes	1	0.1	0.0%	-	-	-	1
3532	1403512	Hypoint-Gravesumit association, 2 to 8 percent slopes	1	2.0	0.6%	-	-	-	1
3550	1403493	Olympus-Cajon complex, 2 to 8 percent slopes	1	0.8	0.2%	-	-	-	2.4
3610	1403445	Burntshack-Hypoint association, 2 to 4 percent slopes	1	4.0	1.2%	-	-	-	1.5
4003	1403507	Daisy-Gravesumit-Cajon complex, 2 to 4 percent slopes	1	2.8	0.8%	-	-	-	1.5
4050	1403472	Oldwoman-Gravesumit-Noagua complex, 2 to 4 percent slopes	1	0.3	0.1%	B	3	86	1.5
4060	1403473	Gravesumit-Noagua complex, 2 to 4 percent slopes	1	2.2	0.6%	-	-	-	-
4401	1403478	Daisy-Arizo association, 0 to 4 percent slopes	1	0.2	0.0%	A	1	220	1.5
4402	1403479	Arizo association, 0 to 4 percent slopes	1	0.3	0.1%				1
450	468883	Arizo association	2	12.5	3.6%	C	7	38	1
4601	1403480	Ironped-Rock outcrop-Cougarbutte complex, 2 to 15 percent slopes	1	0.6	0.2%	-	-	-	-
4602	1403501	Ironped-Gravesumit-Typic Haplocalcids association, 2 to 15 percent slopes	1	2.0	0.6%	D	1	220	1.5
4604	1403504	Ironped-Silvermine-Typic Haplocalcids complex, 2 to 8 percent slopes	1	0.9	0.3%	D	2	134	1.5
4802	1403503	Rock outcrop	1	0.1	0.0%	-	-	-	-
4803	1403505	Rock outcrop-Cougarbutte association, 2 to 15 percent slopes	1	0.1	0.0%	-	-	-	-
651	468926	Peskah-Arizo association	2	2.6	0.7%	C	8	0	2.3
680	468936	Lanfair-Hoppswell association	2	9.3	2.7%	C	6	48	1.5
690	468938	Hoppswell-Ustidur association	2	10.3	3.0%	C	8	0	2
710	468942	Arizo-Lanfair-Riverwash association	2	4.2	1.2%	A	8	0	1
801	468963	Nippeno-Newera association	2	7.6	2.2%	D	8	0	3.2
s1024	660471	Wasco-Rosamond-Cajon (s1024)	1	8.5	2.4%	-	-	-	-
s1032	660479	Wasco-Helendale-Bryman (s1032)	1	3.5	1.0%	-	-	-	-
s1125	660572	St. Thomas-Rock outcrop (s1125)	2	1.3	0.4%	-	-	-	-

Table 5.7-4. Mapped Soil Units and Soil Properties

Soil Description			Soil Occurrence on EPL Alignment			Soil Properties			
Soil Map Unit	Soil Map Unit Key	Map Unit Name	EPL Segments with Soil	EPL Length with Soils (miles)	EPL Line Percentage with Soil	Hydrologic Group	Wind Erodibility Group	Wind Erodibility Index	Linear Extensibility Percent*
s1126	660573	Tecopa-Rock outcrop-Lithic Torriorthents (s1126)	2	7.4	2.1%	-	-	-	-
s1127	660574	Upspring-Sparkhule-Rock outcrop (s1127)	1, 2	5.3	1.5%	-	-	-	-
s1130	660577	Rock outcrop-Lithic Torriorthents (s1130)	2	2.7	0.8%	-	-	-	-
s1134	660581	Trigger-Rock outcrop-Calvista (s1134)	1, 2	15.2	4.4%	-	-	-	-
s1136	660583	Rositas-Dune land-Carsitas (s1136)	2	10.1	2.9%	-	-	-	-
s1137	660584	Rositas-Carrizo (s1137)	2	45.9	13.2%	-	-	-	-
s1142	660589	Nickel-Bitter-Arizo (s1142)	1, 2	20.7	5.9%	-	-	-	-
s1143	660590	Cajon-Arizo (s1143)	1, 2	34.1	9.8%	-	-	-	-
s1144	660591	Skyhaven-Rillito-Mead-McCullough-Ireteba-Bluepoint (s1144)	2	43.1	12.4%	-	-	-	-
s5595	670511	Dedas-Cave-Canutio-Armpup-Arizo (s5595)	2	7.8	2.2%	-	-	-	-

The hydrologic group classification is a measure of infiltration rate and runoff potential (NRCS 1986, 2017c). Group A soils have the highest infiltration rates and lowest runoff potentials; they are typically coarse-grained and deep. Conversely, Group D soils have the lowest infiltration rates and highest runoff potential; they are typically fine-grained and shallow, or in areas with high water tables. Groups B and C are intermediate. A range of soil hydrologic groups can be found locally in both mountain and valley areas along the EPL Project alignment.

The wind erodibility group and wind erodibility index are measures of soil susceptibility to wind erosion after cultivation or disturbance (NRCS 2019b). Soils with relatively high levels of wind erodibility (Wind Erodibility Groups 1 and 2) are mapped along the western and central portions of Segments 1 and 2.

Linear extensibility is a measure of soil shrink-swell potential, or the potential of a soil to change in volume between the wet and dry states (NRCS 2019b). This factor was evaluated using a weighted average of the representative values for all layers in the SSURGO database. Linear extensibility data is available for 39 percent of the EPL Project alignment; of this, only 1.2 percent of the soils along the EPL Project alignment have a high shrink-swell potential (with linear extensibility percent [LEP] values greater than 6.0). Only two soil types along the EPL Project alignment are characterized by high shrink-swell potential: Bousic Clay and Peterman Clay.

5.7.1.5 Paleontological Report

A paleontological technical report is provided as Appendix J. This technical report presents information on documented fossil collection localities within the EPL Project area and a ½-mile buffer; a paleontological resource sensitivity analysis based on published geological mapping and the resource sensitivity of each rock type; and supporting maps.

5.7.2 Regulatory Setting

Federal, State, and local regulations were reviewed for applicability to the EPL Project.

5.7.2.1 Regulatory Setting

5.7.2.1.1 Federal

5.7.2.1.1.1 Clean Water Act

Enacted in 1972, the Federal Clean Water Act (CWA; 33 U.S.C. § 1251 et seq.) and subsequent amendments outline the basic protocol for regulating discharges of pollutants to waters of the U.S. It is the primary federal law applicable to water quality of the nation's surface waters, including lakes, rivers, and coastal wetlands. Enforced by the USEPA, it was enacted "… to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." The CWA authorizes States to adopt water quality standards and includes programs addressing both point and non-point pollution sources. The CWA also established the NPDES program and provides the USEPA the authority to implement pollution control programs, such as setting wastewater standards for industry and water quality standards for surface waters (see below for a discussion of the NPDES program).

In California, programs and regulatory authority under the CWA have been delegated by USEPA to the SWRCB and its nine RWQCBs. Under Section 402 of the CWA as delegated to the State of California, a discharge of pollutants to navigable waters is prohibited unless the discharge complies with an NPDES permit. The SWRCB and RWQCBs have developed numeric and narrative water quality criteria to protect beneficial uses of State waters and waterways.

5.7.2.1.1.2 National Earthquake Hazards Reduction Act of 1977

The National Earthquake Hazards Reduction Act of 1977 (Public Law 95-124) created the National Earthquake Hazards Reduction Program (NEHRP), establishing a long-term earthquake risk reduction program to better understand, predict, and mitigate risks associated with seismic events. Four federal agencies are responsible for coordinating activities under NEHRP: U.S. Geological Survey (USGS); National Science Foundation (NSF); Federal Emergency Management Agency (FEMA); and National Institute of Standards and Technology (NIST). Since its inception, NEHRP has shifted its focus from earthquake prediction to hazard reduction. The current program objectives (NEHRP 2009) are as follows:

1. Developing effective measures to reduce earthquake hazards;

2. Promoting the adoption of earthquake hazard reduction activities by federal, state, and local governments, national building standards and model building code organizations, engineers, architects, building owners, and others who play a role in planning and constructing buildings, bridges, structures, and critical infrastructure or "lifelines";

3. Improving the basic understanding of earthquakes and their effects on people and infrastructure through interdisciplinary research involving engineering, natural sciences, and social, economic, and decision sciences; and

4. Developing and maintaining the USGS seismic monitoring system (Advanced National Seismic System); the NSF-funded project aimed at improving materials, designs, and construction techniques (George E. Brown Jr. Network for Earthquake Engineering Simulation); and the global earthquake monitoring network (Global Seismic Network).

Implementation of NEHRP objectives is accomplished primarily through original research, publications, and recommendations and guidelines for state, regional, and local agencies in the development of plans and policies to promote safety and emergency planning.

5.7.2.1.2 Federal, Paleontological Resources

5.7.2.1.2.1 CFR Title 43

Under Title 43, CFR Section 8365.1–5, the collection of scientific and paleontological resources, including vertebrate fossils, on federal land is prohibited. The collection of a "reasonable amount" of common invertebrate or plant fossils for noncommercial purposes is permissible (43 CFR 8365.1–5 [U.S. Government Printing Office 2014]).

5.7.2.1.2.2 Federal Land Policy and Management Act (FLPMA)

This law (Public Law [PL] 94-579; 90 Statute 2743, USC 1701–1782) requires that public lands be managed in a manner that will protect the quality of their scientific values. Specifically, FLPMA was established as a public land policy to "provide for the management, protection, development, and enhancement of the public lands." FLPMA requires federal agencies to manage public lands so that environmental, historic, archeological, and scientific resources are preserved and protected, where appropriate. Though FLPMA does not refer specifically to fossils, the law does protect scientific resources such as significant fossils, including vertebrate remains. FLPMA regulates the "use and development of public lands and resources through easements, licenses, and permits." The law requires the public lands to be inventoried so that the data can be used to make informed land-use decisions, and requires permits for the use, occupancy and development of the certain public lands, including the

collection of significant fossils for scientific purposes (43 USC 1701 Section 102, 302 [U.S. Department of the Interior et al. 2001]).

5.7.2.1.2.3 National Environmental Policy Act

The National Environmental Protection Act (NEPA) requires the federal government to carry out its plans and programs in such a way as to "preserve important historic, cultural, and natural aspects of our national heritage" (42 USC Section 4331[b][4]). The intent of the statute is to require that agencies obtain sufficient information regarding historic and cultural properties (including consulting, for example, appropriate members of the public; local, state, and other federal government agencies; and Native American tribes, organizations, and individuals) to make a determination of the historical and cultural significance of affected historic or cultural properties (including paleontological resources) and to take into account whether irreversible adverse impacts to such resources can or should be avoided, minimized, or mitigated.

5.7.2.1.2.4 Omnibus Public Lands Act

The Omnibus Public Lands Act (OPLA) directs the Secretaries of Interior and Agriculture to manage and protect paleontological resources on federal land using "scientific principles and expertise." OPLA incorporates most of the recommendations of the report of the Secretary of the Interior titled "Assessment of Fossil Management on Federal and Indian Lands" (2000) to formulate a consistent paleontological resources management framework. In passing the OPLA, Congress officially recognized the scientific importance of paleontological resources on some federal lands by declaring that fossils from these lands are federal property that must be preserved and protected. Title VI, Subtitle D on Paleontological Resources Preservation (OPLA-PRP) codifies existing policies of federal agencies and provides the following:

- Uniform criminal and civil penalties for illegal sale and transport, and theft and vandalism of fossils from federal lands;
- Uniform minimum requirements for paleontological resource-use permit issuance (terms, conditions, and qualifications of applicants);
- Uniform definitions for "paleontological resources" and "casual collecting"; and
- Uniform requirements for curation of federal fossils in approved repositories.

Federal legislative protections for scientifically significant fossils applies to projects that take place on federal lands (with certain exceptions such as the Department of Defense), involve federal funding, require a federal permit, or involve crossing state lines. Since a portion of the EPL Project area occurs on federal agency-managed lands, federal protections for paleontological resources for those areas apply under NEPA, FLPMA, and OPLA-PRP. All paleontological work on federal agency lands must be approved and coordinated by the federal agency. All fossils collected from federal agency lands must be housed in a federally approved paleontological repository. The paleontological repository would be determined following lead agency coordination and the issuance of applicable permits for the EPL Project.

5.7.2.1.3 State, Geology and Soils

5.7.2.1.3.1 Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo (AP) Earthquake Fault Zoning Act was enacted by the State of California in 1972 to mitigate the hazard of surface faulting to structures planned for human occupancy and other critical

structures. The State has established regulatory zones, known as Earthquake Fault Zones and often referred to as AP zones, around the surface traces of active faults and has issued Earthquake Fault Zone Maps to be used by government agencies in planning and reviewing new construction. In addition to residential projects, structures planned for human occupancy that are associated with industrial and commercial projects are of concern.

5.7.2.1.3.2 California Public Utilities Commission General Order 95

CPUC GO 95 Rules for Overhead Line Construction provides general standards for the design and construction of overhead electric transmission lines.

5.7.2.1.3.3 California Public Utilities Commission General Order 128

GO 128 (Rules for Construction of Underground Electric Supply and Communication Systems) provides general standards for the construction of underground electric systems.

5.7.2.1.3.4 California Public Utilities Commission General Order 131-D

Pursuant to GO 131-D, the CPUC has sole and exclusive jurisdiction over the siting and design of electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities in the State of California. Under CEQA, the CPUC is the lead agency with respect to such EPL Project elements within the State of California. SCE is required to comply with GO 131-D and is seeking a CPCN from the CPUC for the EPL Project and therefore compliance with CEQA and other state environmental statutes involving cultural (including paleontological) resources. The CPUC is tasked with compliance of all provisions in CEQA and the CEQA Guidelines that concern cultural (including paleontological) resources as explained below.

5.7.2.1.3.5 Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act of 1990 (California Public Resources Code, Chapter 7.8, Section 2690-2699.6) directs the California Department of Conservation (DOC) to identify and map areas prone to liquefaction, earthquake-induced landslides, and amplified ground shaking. The purpose of this program is to minimize loss of life and property through the identification, evaluation, and mitigation of seismic hazards. Seismic Hazard Zone Maps that identify Zones of Required Investigation have been generated as a result of the program. Cities and counties are then required to use the Seismic Hazard Zone Maps in their land use planning and building permit processes. As discussed previously, the EPL Project is in an area that has not yet been mapped as part of the Seismic Hazards Mapping Act.

5.7.2.1.3.6 Nevada Bureau of Mines and Geology

The Nevada Bureau of Mines and Geology (NBMG) is a research and public service unit of the University of Nevada and is the state geological survey. The NBMG publishes reports on mineral resources, engineering geology, environmental geology, hydrogeology, and geologic mapping. The NBMG is responsible for publishing geological maps from the USGS's Quaternary Fault and Fold Database for the U.S.

5.7.2.1.4 State, Paleontological Resources

5.7.2.1.4.1 California Environmental Quality Act

CEQA is the principal statute governing environmental review of projects occurring in the state and is codified at California Public Resources Code (PRC) Section 21000 et seq. CEQA requires lead agencies to determine whether a proposed project would have a significant effect on the environment, including

significant effects on paleontological resources. Guidelines for the Implementation of CEQA, as amended December 28, 2018 (Title 14, Chapter 3, California Code of Regulations 15000 et seq.), define procedures, types of activities, persons, and public agencies required to comply with CEQA. Section VII(f) of the Environmental Checklist (State CEQA Guidelines: Appendix G) asks whether a project would directly or indirectly destroy a unique paleontological resource and result in impacts to the environment.

5.7.2.1.4.2 California Public Resources Code Section 5097.5

This law affirms that no person shall willingly or knowingly excavate, remove, or otherwise destroy a vertebrate paleontological site or paleontological feature without the express permission of the overseeing public land agency. It further states under PRC 30244 that any development that would adversely affect paleontological resources shall require reasonable mitigation. These regulations apply to projects located on land owned by or under the jurisdiction of the state or any city, county, district, or other public agency (PRC Section 5097.5; California OHP 2005).

5.7.2.1.4.3 Nevada Revised Statutes Chapter 383

The Nevada Revised Statutes (NRS) Chapter 383, "Historic Preservation and Archaeology", recognizes paleontological resources as part of cultural resources (NRS 383.011) and defines a "prehistoric site" as "any archeological or paleontological site, ruin, deposit, fossilized footprints and other impressions, petroglyphs and pictographs, habitation caves, rock shelters, natural caves, burial ground or sites of religious or cultural importance to an Indian tribe dating before the middle of the 18th century" (NRS 381.195). Such sites are protected from vandalism and illegal collection or sale (NRS 383.075, 383.435) and require a permit to investigate, explore, or excavate (NRS 383.121).

5.7.2.1.5 Local, Geology and Soils

The CPUC has sole and exclusive state jurisdiction over the siting and design of the EPL Project. Pursuant to GO 131-D, Section XIV.B, "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters." Consequently, public utilities are directed to consider local regulations and consult with local agencies, but the county and cities' regulations are not applicable as the county and cities do not have jurisdiction over the EPL Project. Accordingly, the following discussion of local land use regulations is provided for informational purposes only.

5.7.2.1.5.1 San Bernardino County Countywide Plan

The Hazards Element of the Countywide Plan contains the following:

> Policy HZ-1.9 Hazard areas maintained as open space
>
> We minimize risk associated with flood, geologic, and fire hazard zones or areas by encouraging such areas to be preserved and maintained as open space.

5.7.2.1.5.2 City of Hesperia General Plan 2010

The Safety Element contains the following:

> Goal: SF-1
>
> Minimize injury, loss of life, property damage and economic and social disruption caused by seismic shaking and other earthquake-induced hazards, and by geologic hazards such as slope instability, compressible and collapsible soils, and subsidence.

No associated Implementation Policy is relevant to the EPL Project.

5.7.2.1.5.3 Clark County (NV) Code of Ordinances

The Clark County (NV) Code of Ordinances does not contain any geology or soil resources-related ordinances of relevance to the EPL Project.

5.7.2.1.5.4 City of Boulder City (NV) Code of Ordinances

The City of Boulder City (NV) Code of Ordinances does not contain any geology or soil resources-related ordinances of relevance to the EPL Project.

5.7.2.1.6 Local, Paleontological Resources

The CPUC has sole and exclusive state jurisdiction over the siting and design of the EPL Project. Pursuant to GO 131-D, Section XIV.B, "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters." Consequently, public utilities are directed to consider local regulations and consult with local agencies, but the county and cities' regulations are not applicable as the county and cities do not have jurisdiction over the EPL Project. Accordingly, the following discussion of local land use regulations is provided for informational purposes only.

5.7.2.1.6.1 San Bernardino County General Plan

The Conservation Element of the San Bernardino County General Plan (Chapter V; San Bernardino County 2007) identifies paleontological resources as part of the heritage of San Bernardino County. Goal CO3 states, "the County will preserve and promote its historic and prehistoric cultural heritage," and identifies the following policies to preserve paleontological resources:

> Policy CO 3.4, Program 4: In areas of potential but unknown sensitivity, field surveys prior to grading will be required to establish the need for paleontologic monitoring.
>
> Policy CO 3.4, Program 5: Projects requiring grading plans that are located in areas of known fossil occurrences, or demonstrated in a field survey to have fossils present, will have all rough grading (cuts greater than 3 feet) monitored by trained paleontologic crews working under the direction of a qualified professional, so that fossils exposed during grading can be recovered and preserved. Fossils include large and small vertebrate fossils, the latter recovered by screen washing of bulk samples.
>
> Policy CO 3.4, Program 6: A report of findings with an itemized accession inventory will be prepared as evidence that monitoring has been successfully completed. A preliminary report will be submitted and approved prior to granting of building permits, and a final report will be submitted and approved prior to granting of occupancy permits. The adequacy of paleontologic reports will be determined in consultation with the Curator of Earth Science, San Bernardino County Museum.

5.7.2.1.6.2 City of Hesperia General Plan 2010

The Conservation Element contains the following:

> Goal: CN-5

The City shall establish policie and procedures in compliance with state and Federal laws and regulations to identify and properly protect found historical, cultural, and paleontological artifacts and resources.

Five implementation policies are present under this goal:

Implementation Policy: CN-5.1: Encourage the preservation of historical, paleontological and cultural resources.

Implementation Policy: CN-5.2: In those areas where surveys and records indicate historical, cultural or paleontological resources may be found, appropriate surveys and record searches shall be undertaken to determine the presence of such resources, if any.

Implementation Policy: CN-5.3: All historical, paleontological and cultural resources discovered shall be inventoried and evaluated according to CEQA regulations and the California Office of Historic Preservation.

Implementation Policy: CN-5.4: The City shall coordinate with the Archeological Information Center at the San Bernardino County Museum in reviewing potential records and in preserving such artifacts as may be found.

Implementation Policy: CN-5.5: Through its CEQA and other environmental procedures, the City shall notify appropriate Native American representatives of possible development and shall comply with all State and Federal requirements concerning the monitoring and preservation of Native American artifacts and places.

5.7.2.1.6.3 Clark County (NV) Code of Ordinances

The Clark County (NV) Code of Ordinances does not contain any paleontological resources-related ordinances of relevance to the EPL Project.

5.7.2.1.6.4 Clark County (NV) Comprehensive Master Plan

The Historic Preservation Element of the Clark County Comprehensive Master Plan (Clark County 2019) recognizes one goal with one supporting policy that pertain to paleontological resources:

Goal 1: Encourage community efforts in Clark County that promote the identification and protection of historic resources and programs in Clark County, including recognition of sites on the State and National registers, as well as those designated by the County.

Policy 1: Keep historically designated areas intact and preserve the distinctive historic, economic, cultural, paleontological, or archeological character of appropriate residential neighborhoods.

5.7.2.1.6.5 City of Boulder City (NV) Code of Ordinances

The City of Boulder City (NV) Code of Ordinances does not contain any paleontological resources-related ordinances of relevance to the EPL Project.

5.7.3 Impact Questions

5.7.3.1 Impact Questions

The significance criteria for assessing the impacts to geology and soils come from the CEQA Environmental Checklist. According to the CEQA Checklist, a project causes a potentially significant impact if it would:

- Directly or indirectly cause potential substantial adverse effects, including the risk of loss, or injury, or death involving: rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault (Refer to Division of Mines and Geology Special Publication 42.); strong seismic ground shaking; seismic-related ground failure, including liquefaction; or landslides
- Result in substantial soil erosion or the loss of topsoil
- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse
- Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property
- Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature

5.7.3.2 Additional CEQA Impact Questions

There are no CPUC-identified additional CEQA impact questions.

5.7.4 Impact Analysis

5.7.4.1 Impact Analysis

5.7.4.1.1 Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, or injury, or death involving: rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault (Refer to Division of Mines and Geology Special Publication 42.); strong seismic ground shaking; seismic-related ground failure, including liquefaction; or landslides?

5.7.4.1.1.1 Construction

Less than Significant Impact. No inter-set structures will be installed within an Alquist-Priolo Special Studies Zone, and therefore would not be directly impacted by surface rupture in the Alquist-Priolo Special Studies Zones crossed by the alignment. Some existing structures on which insulators and other hardware will be replaced or modified under the EPL Project are located within an Alquist-Priolo Special Studies Zone, and thus could experience strong seismic ground shaking; however, the magnitude of seismic ground shaking that could be experienced is no greater than could be experienced by the structures as they currently exist. Even though the EPL Project alignment is located in areas susceptible to earthquake forces, the transmission infrastructure involved will not be used for human occupancy and will be designed consistent with GO 95, Rules for Overhead Line Construction, to withstand wind, temperature, and wire tension loads. Accounting for these factors will result in a design that will be adequate to withstand expected seismic loading, and therefore impacts due to strong seismic ground shaking will be less than significant.

The EPL Project alignment may pass through areas of localized liquefaction hazard as discussed in Section 5.7.1.2.4 above. No inter-set structures will be installed in these areas. Settlements induced by dynamic (earthquake) forces are anticipated to be uniform for the proposed inter-set H-frame structures given their small footprints, and thus use of these structures reduces the potential for differential settlements and other adverse effects including loss of functionality, or risk of injury or loss of life. The replacement of insulators and modification of other hardware on existing structures or installation of new conductor on existing structures would not increase the existing structures' susceptibility to a liquefaction hazard. Therefore, impacts associated with liquefaction will be less than significant in areas potentially subject to liquefaction.

Those portions of the EPL Project alignment that pass through valley areas have relatively low to absent potential of landslides or other slope-related hazards. In localized areas with higher potential of landslides or other slope-related hazards, some inter-set structures will be exposed to the risk of loss from a landslide or rockfall. These areas are generally uninhabited and non-SCE structures are generally not present proximate to the location of existing or inter-set structures. The modification of existing structures or installation of new conductor on existing structures would not increase the existing structures' susceptibility to landslides or other slope-related hazards. Therefore, the EPL Project will not expose people or non-SCE structures to potential substantial adverse effects, including the risk of loss, injury, or death, and thus impacts due to landslides will be less than significant.

5.7.4.1.1.2 Operation

No Impact. As presented in Chapter 3, SCE is currently performing O&M activities, including inspections, along the transmission lines that are included under the EPL Project. No material changes in O&M activities are anticipated with implementation of the EPL Project, and therefore no impacts will be realized under this criterion during operations and maintenance.

5.7.4.1.2 Would the project result in substantial soil erosion or the loss of topsoil?

5.7.4.1.2.1 Construction

Less than Significant Impact. Loss of topsoil and erosion could result from construction activities, including the operation of heavy machinery on unimproved roadways, grading activities, excavation, drilling, or wind or water erosion of stockpiled fill/excavated materials. Preparation of the staging areas may result in the loss of topsoil; however, the application of road base or crushed rock will serve to reduce erosivity. Use of existing access roads will also result in the loss of topsoil; however, compaction associated with that use will serve to minimize erosion on roadways.

Erosion due to water runoff and wind will be minimized by the implementation of the BMPs presented in Section 3.5.11. During construction, water trucks and other measures will be used to minimize the quantity of fugitive dust created by construction. Implementation of the BMPs will ensure that no substantial soil erosion or loss of topsoil results from construction of the EPL Project, and thus impacts will be less than significant.

5.7.4.1.2.2 Operation

No Impact. As presented in Chapter 3, SCE is currently performing O&M activities, including inspections, along the transmission lines that are included under the EPL Project. No material changes in O&M activities are anticipated with implementation of the EPL Project, and therefore no impacts will be realized under this criterion during operations and maintenance.

5.7.4.1.3 Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

5.7.4.1.3.1 Construction

Less than Significant Impact. The EPL Project would not cause any geologic unit or soil to become unstable.

The potential for risk from on- or off-site landslides is considered to be low for components of the EPL Project located in valley areas with relatively low threats of landslide or other slope-related hazards. Localized areas of steeper slopes and higher landslide hazard occur where EPL Project components are located along the edges of hills and mountains. Construction activities may trigger minor, isolated instances of on- or off-site sliding of surficial rocks or soil; however, these areas are unpopulated and third-party structures are generally not present. Further, the construction activities would not affect the geologic unit, and thus potential effects from on- or off-site landslide are less than significant.

Ground subsidence related to decreasing groundwater levels has been documented along Segments 1 and 2. The construction of the EPL Project does not entail any dewatering in these areas and thus will not result in subsidence.

The EPL Project alignment may pass through areas of liquefaction hazard as described above. Liquefaction-induced lateral spreading may also be a hazard in these areas. No inter-set structures will be installed in these areas, and thus could not be affected by lateral spreading. The modification of existing structures or installation of new conductor on existing structures would not increase the existing structures' susceptibility to lateral spreading. Construction of the EPL Project will not in and of itself result in liquefaction of soils or lateral spreading, and therefore impacts will be less than significant.

No records of soil collapse were identified near the EPL Project alignment; however, soils subject to collapse due to water infiltration may be locally present. Construction of the EPL Project will not in and of itself result in the collapse of soils, and therefore impacts will be less than significant.

As presented above, impacts associated with the risk of landslides, lateral spreading, subsidence, liquefaction, and collapse will be less than significant.

5.7.4.1.3.2 Operation

No Impact. As presented in Chapter 3, SCE is currently performing O&M activities, including inspections, along the transmission lines that are included under the EPL Project. No material changes in O&M activities are anticipated with implementation of the EPL Project, and therefore no impacts will be realized under this criterion during operations and maintenance.

5.7.4.1.4 Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

5.7.4.1.4.1 Construction

No Impact. Soils along the EPL Project alignment generally have a low to moderate shrink-swell potential, with the exception of a limited area of high potential in Segment 2 in the Lucerne Valley. No work under the EPL Project would occur in this area, and therefore no impacts will be realized.

5.7.4.1.4.2 Operation

No Impact. As presented in Chapter 3, SCE is currently performing O&M activities, including inspections, along the transmission lines that are included under the EPL Project. No material changes in O&M activities are anticipated with implementation of the EPL Project, and therefore no impacts will be realized under this criterion during operations and maintenance.

5.7.4.1.5 Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

5.7.4.1.5.1 Construction

No Impact. No septic tanks or alternative waste water disposal systems are included in the EPL Project. Therefore, no impacts will be realized.

5.7.4.1.5.2 Operation

No Impact. No septic tanks or alternative waste water disposal systems are included in the EPL Project. Therefore, no impacts will be realized.

5.7.4.1.6 Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

5.7.4.1.6.1 Construction

Less than Significant Impact. Based on the results of the paleontological resources assessment, portions of the Project APE contain geologic units of Moderate (PFYC Class 3), High (PFYC Class 4), and Very High (PFYC Class 5) paleontological sensitivities. Geologic units of at least PFYC Class 3 and higher are present either at the surface or at shallow or undetermined depths beneath geologic units of Very Low (PFYC Class 1) and Low (PFYC Class 2) paleontological sensitivities. Ground-disturbing activities during pre-construction or construction of the EPL Project that have the potential to impact previously undisturbed sediments of geologic units of PFYC Class 3 or higher at the surface or at depth may result in significant impacts to paleontological resources. However, implementation of the measures described as part of the Project Description, including retaining a Project Paleontologist who will prepare and implement a PRMMP, will ensure that impacts to paleontological resources will be less than significant.

5.7.4.1.6.2 Operation

No Impact. As presented in Chapter 3, SCE is currently performing O&M activities, including inspections, along the transmission lines that are included under the EPL Project. No material changes in O&M activities are anticipated with implementation of the EPL Project, and therefore no impacts will be realized under this criterion during operations and maintenance.

5.7.4.2 Geotechnical Requirements

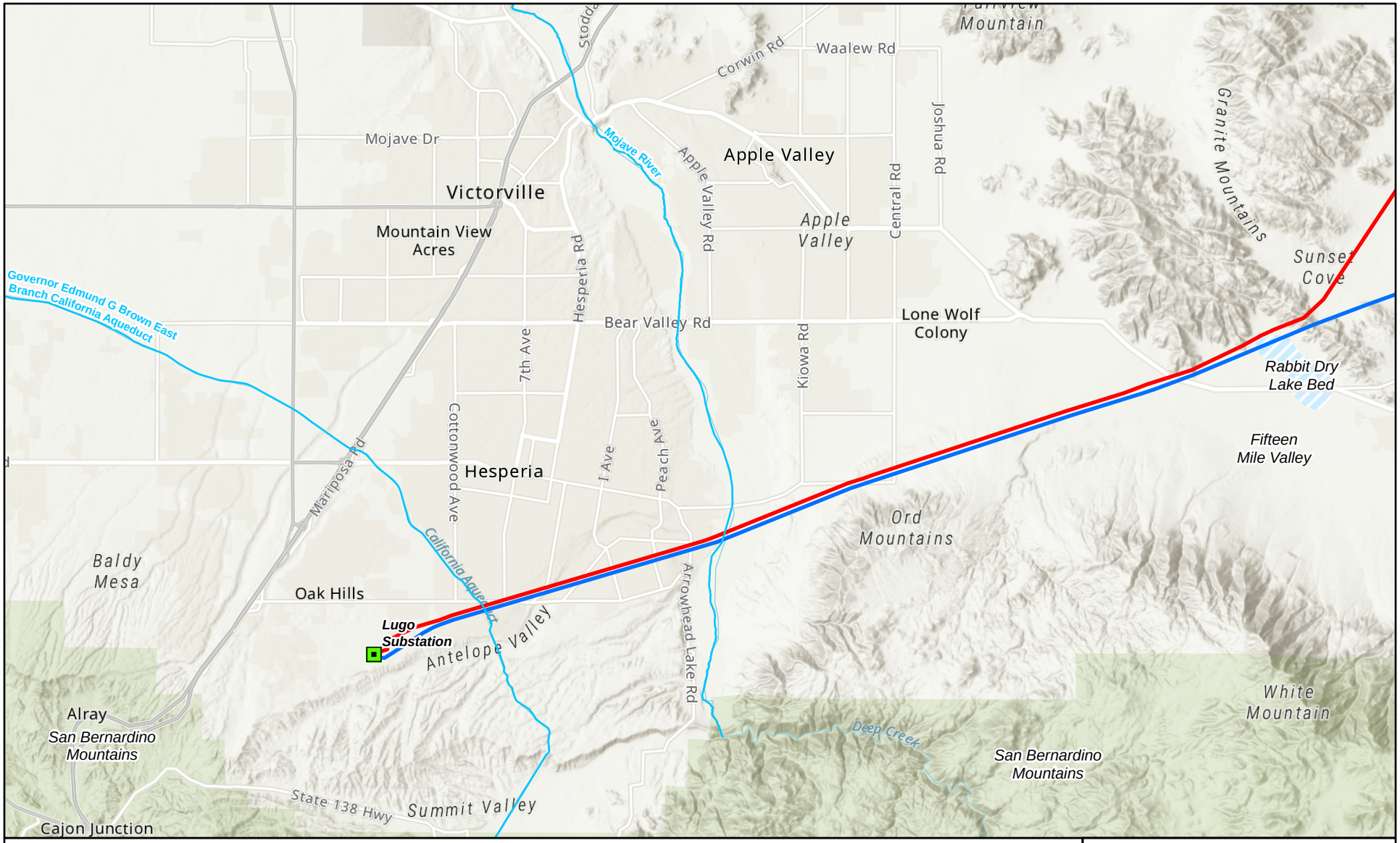
Based on the findings of the geotechnical analysis that will be performed for the EPL Project, SCE would finalize the design of EPL Project components to minimize the potential for landslides, lateral spreading, subsidence, liquefaction, or collapse. Measures that may be used to minimize impacts could include, but are not limited to: construction of pile foundations, installation of support around pole bases, installation of flexible bus connections, and incorporation of slack in cables.

5.7.4.3 Paleontological Resources

Ground-disturbing activities during pre-construction or construction of the EPL Project that have the potential to impact previously undisturbed sediments of geologic units of PFYC Class 3 or higher at the surface or at depth may result in significant impacts to paleontological resources. However, implementation of the measures described as part of the Project Description, including retaining a Project Paleontologist who will prepare and implement a PRMMP, will ensure that impacts to paleontological resources will be less than significant.

5.7.5 CPUC Draft Environmental Measures

There are no CPUC Draft Environmental Measures identified for Geology, Soils, and Paleontological resources.



Legend

- Substation
- Segment 1
- Segment 2
- Surface Water Feature
- County Boundary

NOTES:
Sources: USGS 2019a

0 1 2
Miles

Page 1 of 7

ELDORADO-PISGAH-LUGO 220 kV PROJECT

PRINCIPAL PHYSIOGRAPHIC FEATURES

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.7-1

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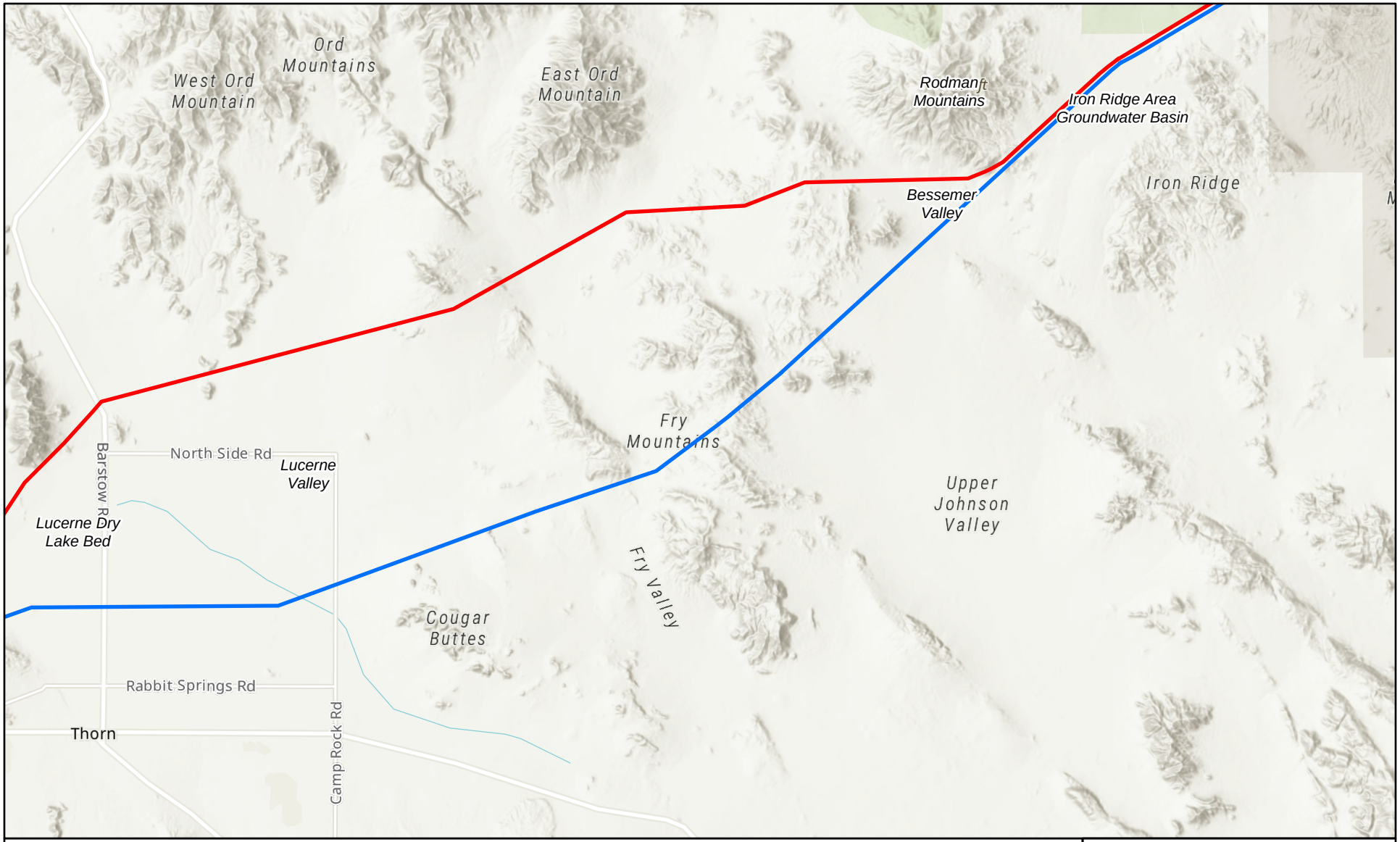

Legend

- Substation
- Segment 1
- Segment 2
- Surface Water Feature
- County Boundary

NOTES:
Sources: USGS 2019a

0 1 2
Miles

Page 2 of 7

ELDORADO-PISGAH-LUGO 220 kV PROJECT

PRINCIPAL PHYSIOGRAPHIC FEATURES

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
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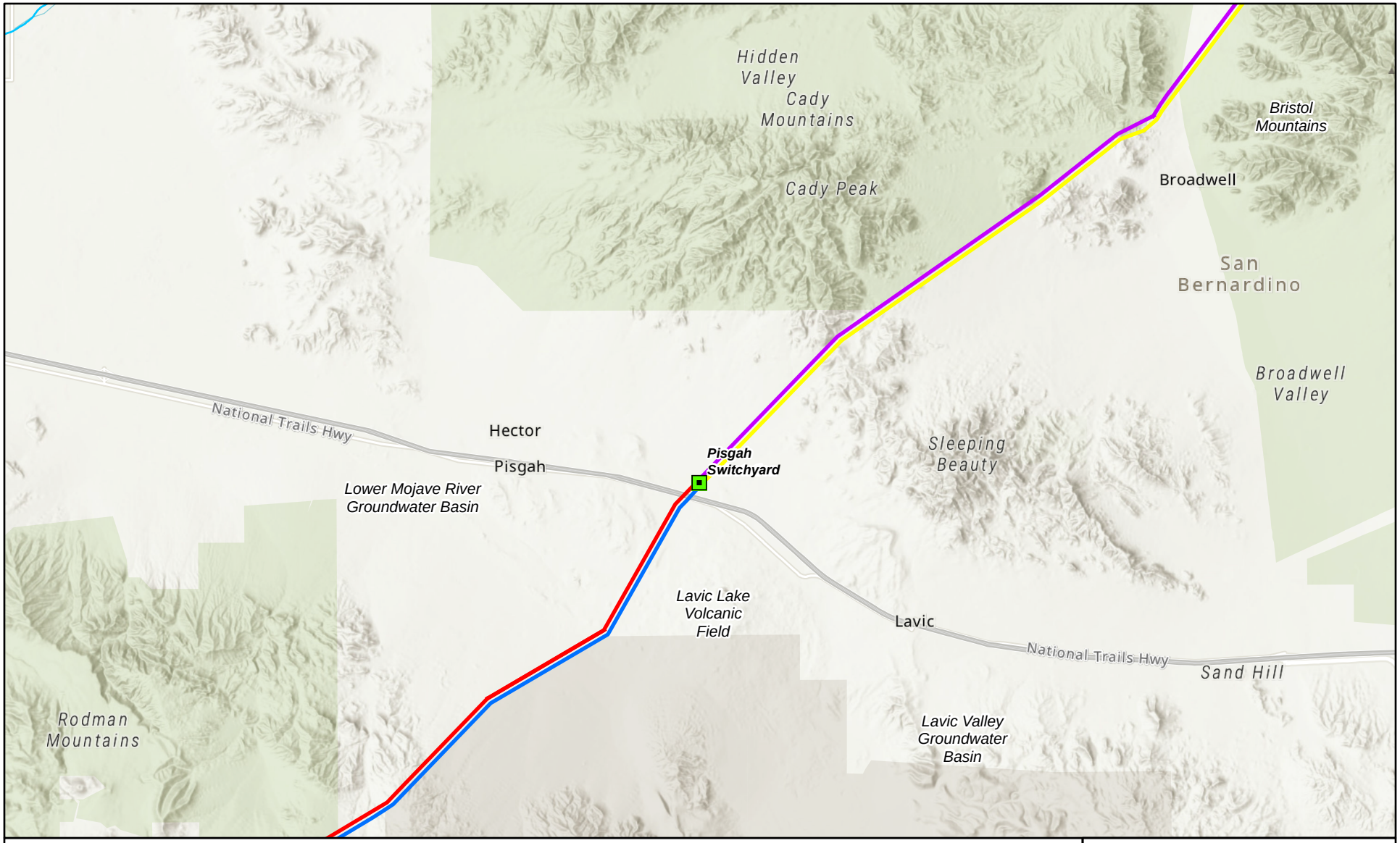
FIGURE 5.7-1

Folder: T:_ENV\SCE\SCE_TLLR\ArcGIS_Pro\



Legend

- Substation
- Segment 1
- Segment 2
- Segment 3
- Segment 4
- Surface Water Feature
- County Boundary

NOTES:
Sources: USGS 2019a

0 1 2
Miles

ELDORADO-PISGAH-LUGO 220 kV PROJECT

PRINCIPAL PHYSIOGRAPHIC FEATURES

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
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FIGURE 5.7-1

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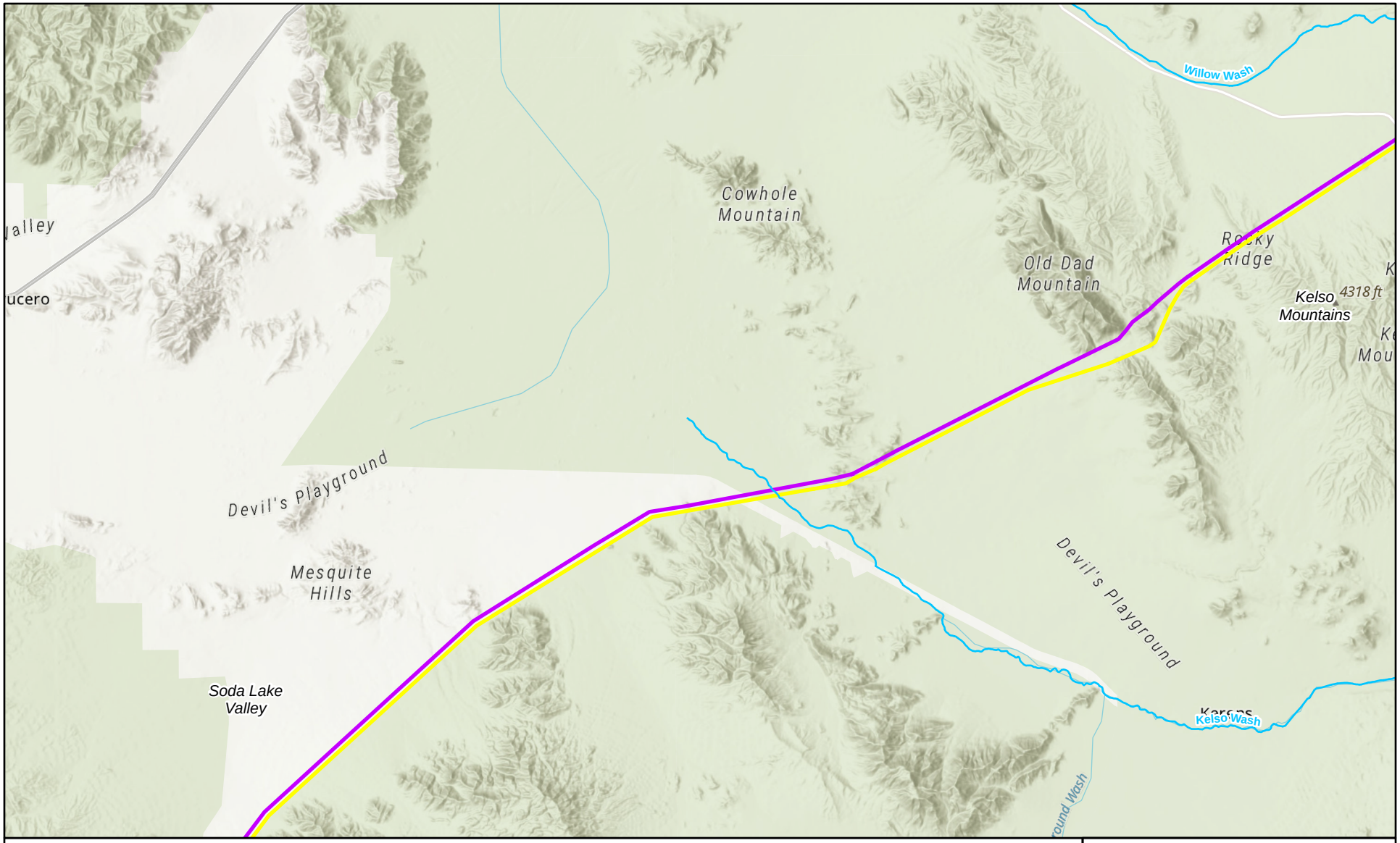

Legend

- Substation
- Segment 3
- Segment 4
- Surface Water Feature
- County Boundary

NOTES:
Sources: USGS 2019a

0 1 2
Miles

ELDORADO-PISGAH-LUGO 220 kV PROJECT

PRINCIPAL PHYSIOGRAPHIC FEATURES

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
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FIGURE 5.7-1

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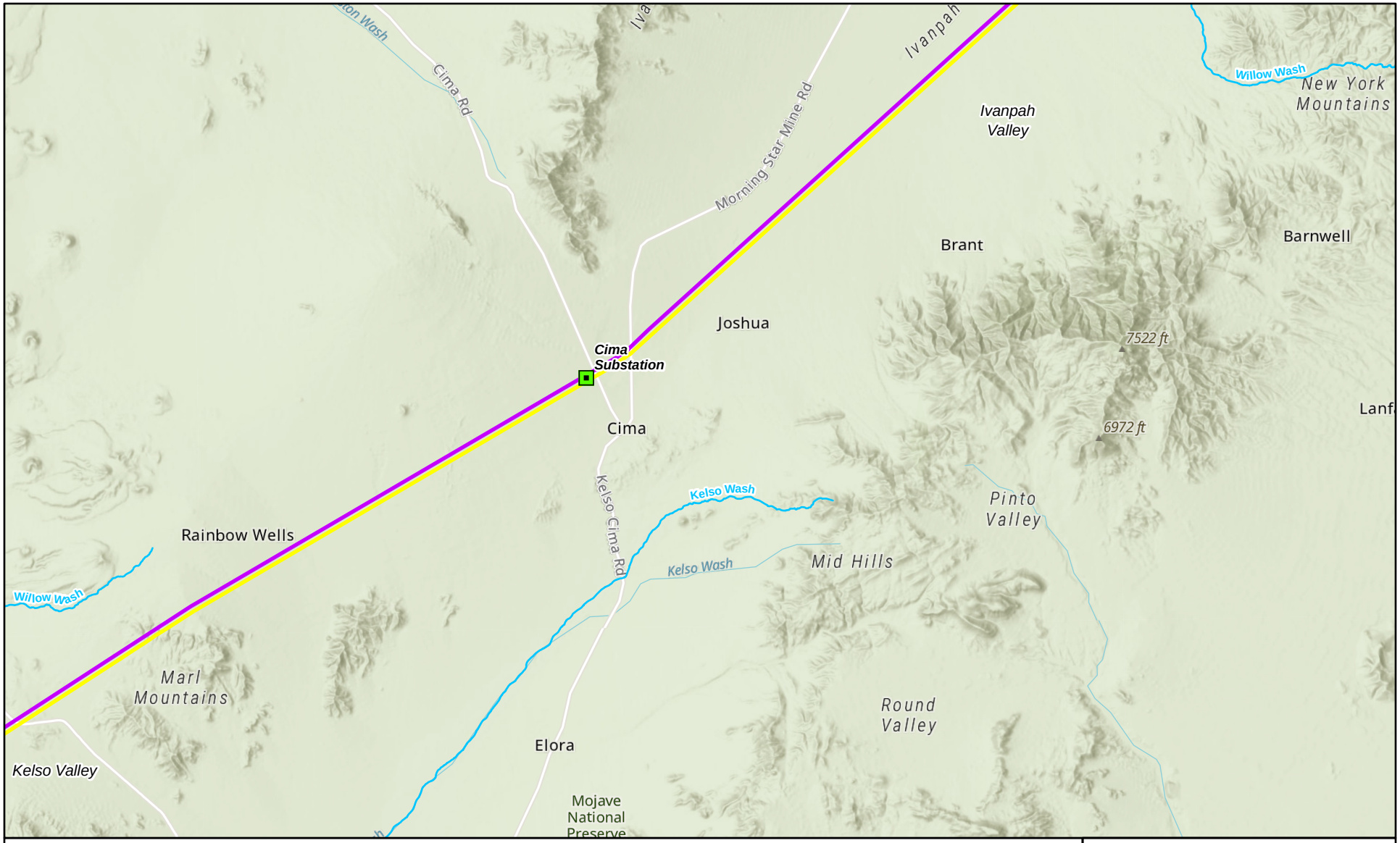

Legend

- Substation
- Segment 3
- Segment 4
- Surface Water Feature
- County Boundary

NOTES:
Sources: USGS 2019a

0 1 2
Miles

ELDORADO-PISGAH-LUGO 220 kV PROJECT

PRINCIPAL PHYSIOGRAPHIC FEATURES

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.7-1

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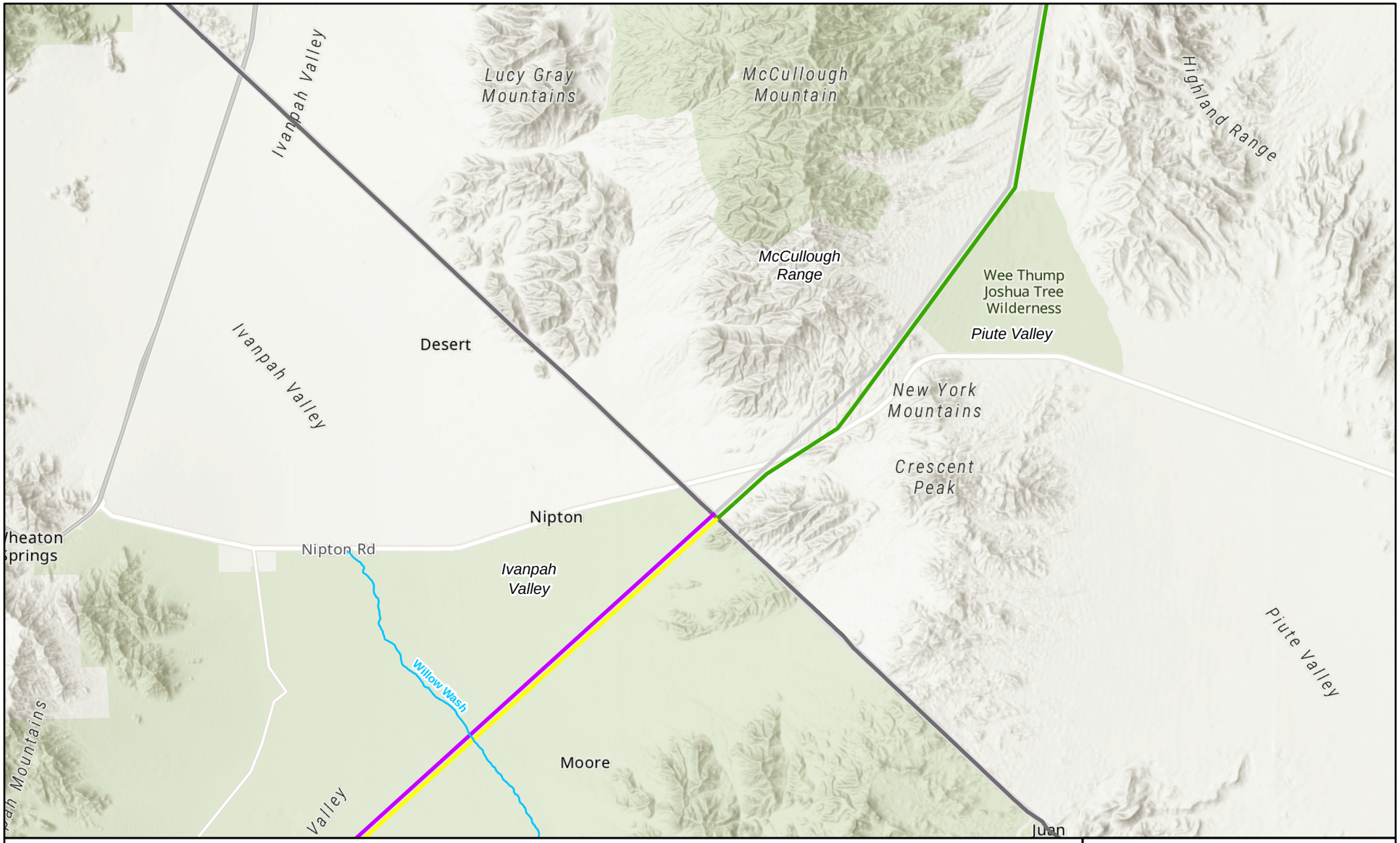

Legend

- Substation
- Segment 3
- Segment 4
- Segment 5
- Segment 6
- Surface Water Feature
- County Boundary

NOTES:
Sources: USGS 2019a

0 1 2
Miles

Page 6 of 7

ELDORADO-PISGAH-LUGO 220 kV PROJECT

PRINCIPAL PHYSIOGRAPHIC FEATURES

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
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FIGURE 5.7-1

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Legend

- Substation
- Segment 5
- Segment 6
- Surface Water Feature
- County Boundary

NOTES:
Sources: USGS 2019a

0 1 2
Miles

Page 7 of 7

ELDORADO-PISGAH-LUGO 220 kV PROJECT

PRINCIPAL PHYSIOGRAPHIC FEATURES

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
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FIGURE 5.7-1

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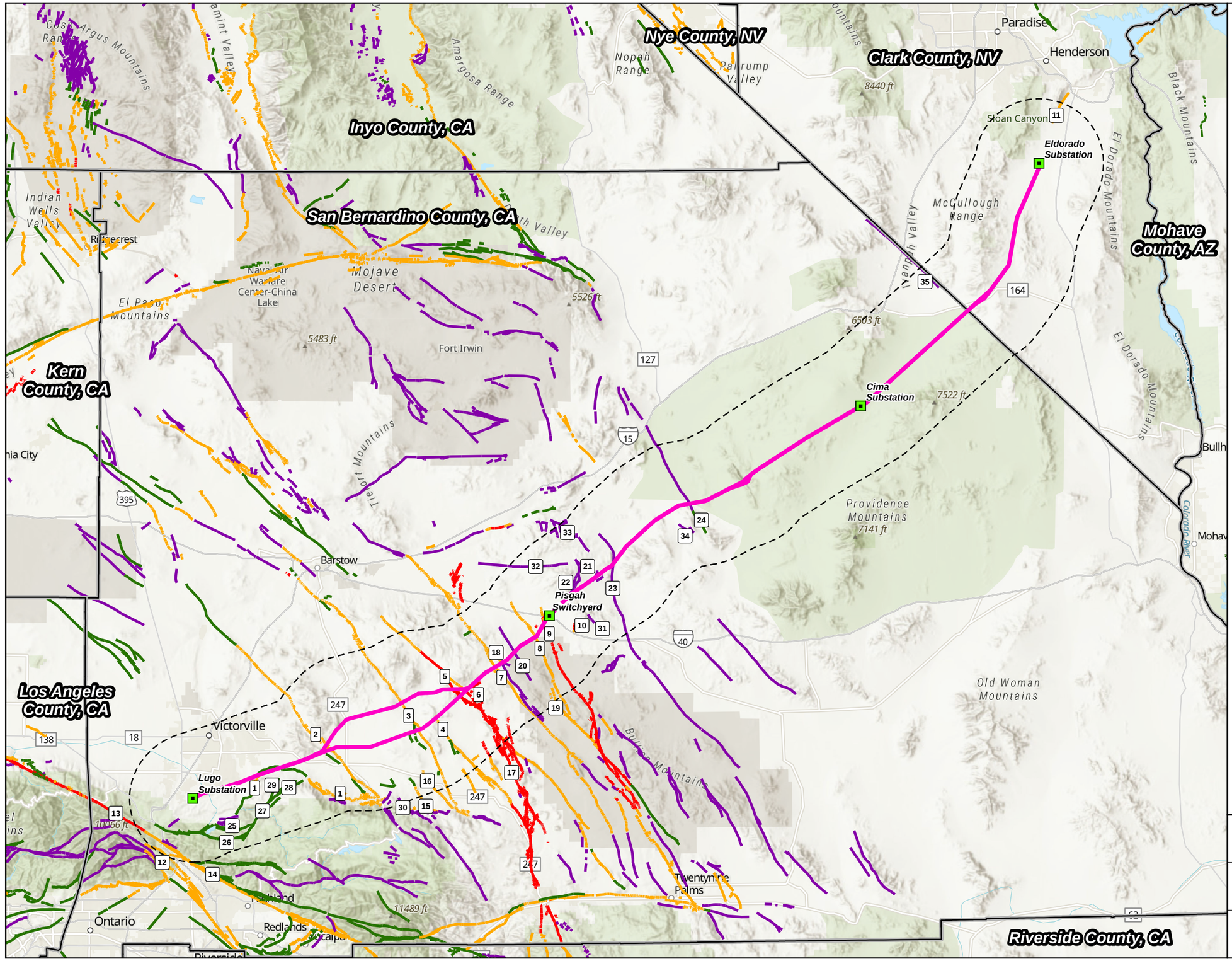

Legend

- County boundary
- Substation
- EPL project alignment
- 10-mile buffer around project alignment
- Historical fault (active)
- Latest Quaternary fault (active)
- Late Quaternary fault (potentially active)
- Undifferentiated Quaternary fault (potentially active)

Active Faults Crossed by Project

1. North Frontal thrust system, Western section
2. Helendale-South Lockhart fault zone, Helendale section
3. Lenwood-Lockhart fault zone, Lenwood section
4. Johnson Valley fault zone, Northern Johnson Valley section
5. Camp Rock-Emerson-Copper Mountain fault zone, Emerson section
6. Camp Rock-Emerson-Copper Mountain fault zone, Camp Rock section
7. Calico-Hidalgo fault zone, West Calico section
8. Pisgah-Bullion fault zone, Pisgah section
9. Lavic Lake fault
10. Unnamed fault (east of Pisgah)
11. Black Hills fault

Active Faults Within 10 Miles of Project

12. San Jacinto fault zone, San Bernardino Valley section
13. San Andreas fault zone, Mojave section
14. San Andreas fault zone, San Bernardino Mountains section
15. Silver Reef fault
16. Old Woman Springs fault
17. Homestead Valley fault zone
18. Calico-Hidalgo fault zone, Calico section
19. Pisgah-Bullion fault zone, Bullion section

Potentially Active Faults Crossed by Project

20. Rodman fault
21. Unnamed fault (Cady Mountains)
22. Unnamed fault (Cady Mountains)
23. Ludlow fault
24. Baker fault

Potentially Active Faults Within 10 Miles of Project

25. Cleghorn fault zone, Northern section
26. Cleghorn fault zone, Southern section
27. Tunnel Ridge fault
28. Arrastre Canyon Narrows fault
29. Bowen Ranch fault
30. North Frontal thrust system, Eastern section
31. Unnamed fault (Sleeping Beauty Mountains)
32. Cady fault
33. Unnamed faults (Cady Mountains)
34. Unnamed faults (Bristol Mountains)
35. Stateline fault

Notes

- Base map source: ESRI World Topographic Map.
- Fault source: United States Geological Survey (USGS).

Miles
0 7½ 15
Scale: 1" = 15 mi

ELDORADO-PISGAH-LUGO 220 kV PROJECT

FAULT MAP

ARCADIS | SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company

FIGURE 5.7-2

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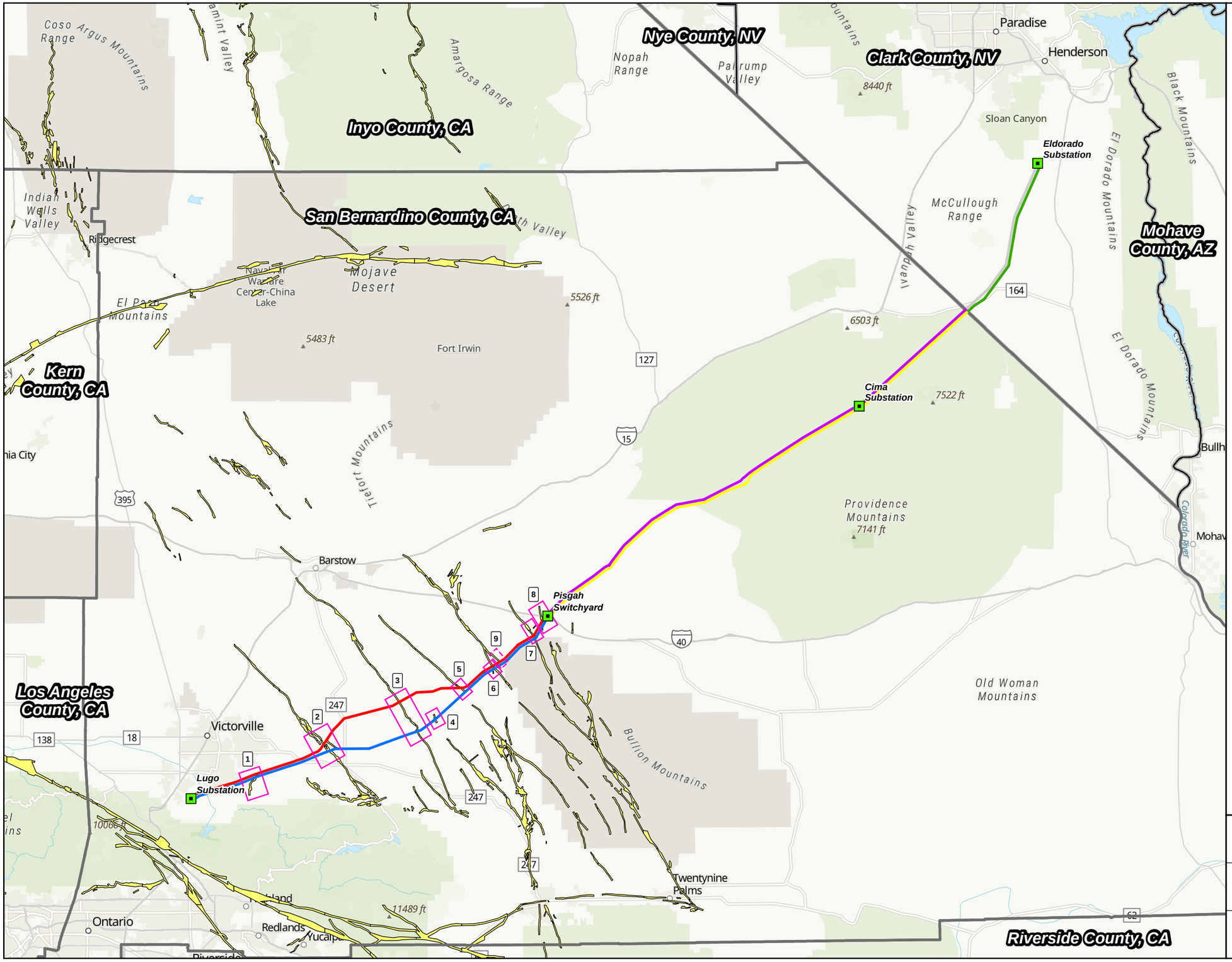

Legend

- County boundary
- Substation
- EPL project alignment (Section 1)
- EPL project alignment (Section 2)
- EPL project alignment (Section 3)
- EPL project alignment (Section 4)
- EPL project alignment (Section 5)
- EPL project alignment (Section 6)
- Alquist-Priolo Zone
- Alquist-Priolo Special Studies Zone crossed by Project
- Alquist-Priolo Special Studies Zone closely approached by Project

Alquist-Priolo Special Studies Zones Crossed by Project

1. North Frontal thrust system, Western section
2. Helendale-South Lockhart fault zone, Helendale section
3. Lenwood-Lockhart fault zone, Lenwood section
4. Johnson Valley fault zone, Northern Johnson Valley section
5. Camp Rock-Emerson-Copper Mountain fault zone, Camp Rock section
6. Calico-Hidalgo fault zone, West Calico section
7. Pisgah-Bullion fault zone, Pisgah section
8. Lavic Lake fault

Alquist-Priolo Special Studies Zones Closely Approached by Project

9. Calico-Hidalgo fault zone, Calico section
   (approximately 700 feet north of Project alignment)

Notes

• Base map source: ESRI World Topographic Map.

Miles
0 7½ 15
Scale: 1" = 15 mi

ELDORADO-PISGAH-LUGO 220 kV PROJECT

ALQUIST-PRIOLO SPECIAL STUDIES ZONES MAP

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FIGURE 5.7-3

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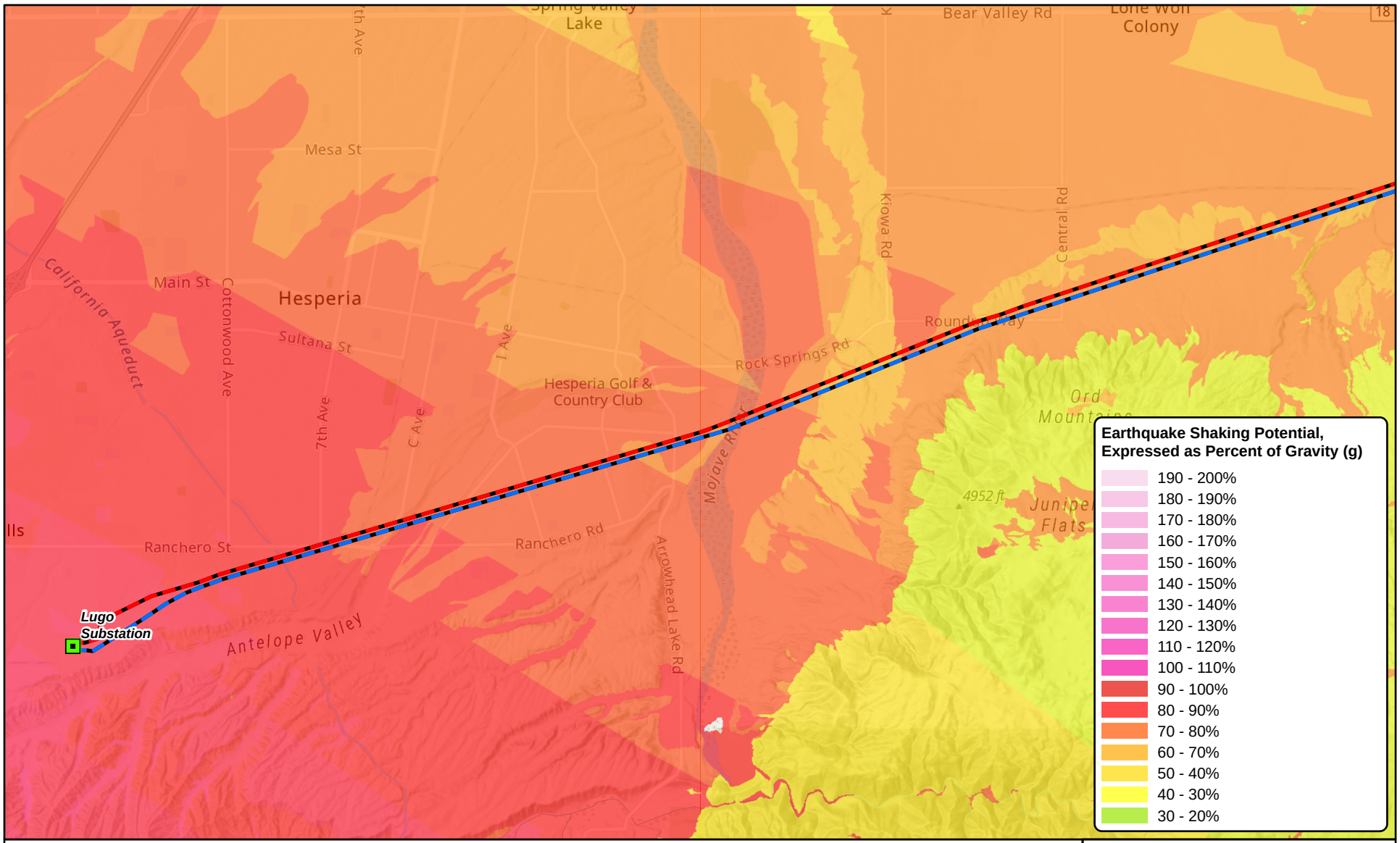

Legend

Substations
Segment 1
Segment 2
County Boundary

NOTES:

1. Shaking Potential Values Reflect Expected Intermediate Period (1.0 Second) Ground Motions with 2% Exceedance Probability in 50 Years.
2. Red = Higher Shaking Potential, Green = Lower Shaking Potential.
3. Based on Branum et al. (2016) and CGS (2016).

Sources: https://gis.conservation.ca.gov/server/rest/services/CGS/MS48_ShakingPotential/MapServer

0 1 2
Miles

ELDORADO-PISGAH-LUGO 220 kV PROJECT

EARTHQUAKE SHAKING POTENTIAL MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
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FIGURE 5.7-4

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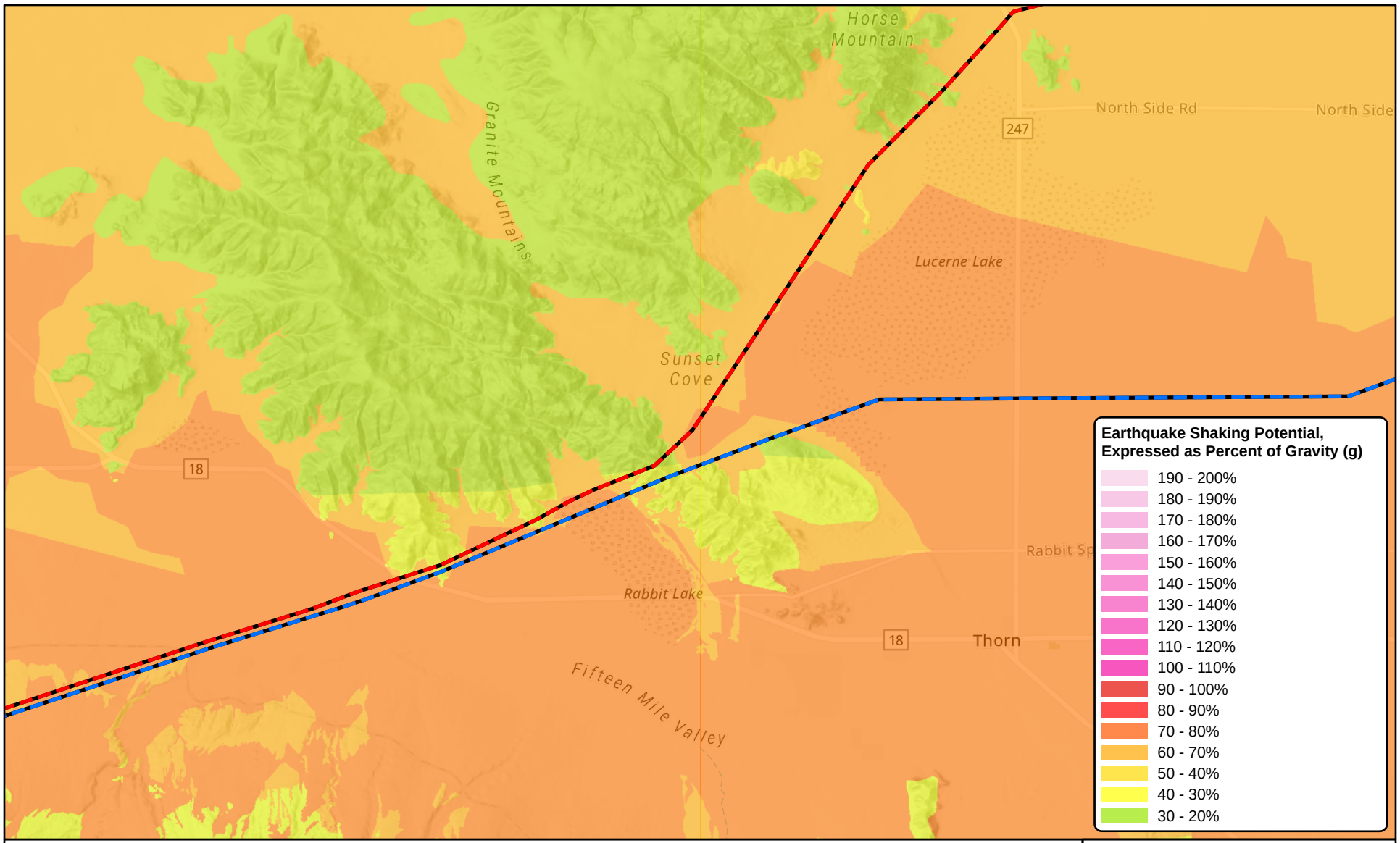

Legend

Substations
Segment 1
Segment 2
County Boundary

NOTES:

1. Shaking Potential Values Reflect Expected Intermediate Period (1.0 Second) Ground Motions with 2% Exceedance Probability in 50 Years.
2. Red = Higher Shaking Potential, Green = Lower Shaking Potential.
3. Based on Branum et al. (2016) and CGS (2016).

Sources: https://gis.conservation.ca.gov/server/rest/services/CGS/MS48_ShakingPotential/MapServer

0 1 2
Miles

ELDORADO-PISGAH-LUGO 220 kV PROJECT

EARTHQUAKE SHAKING POTENTIAL MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.7-4

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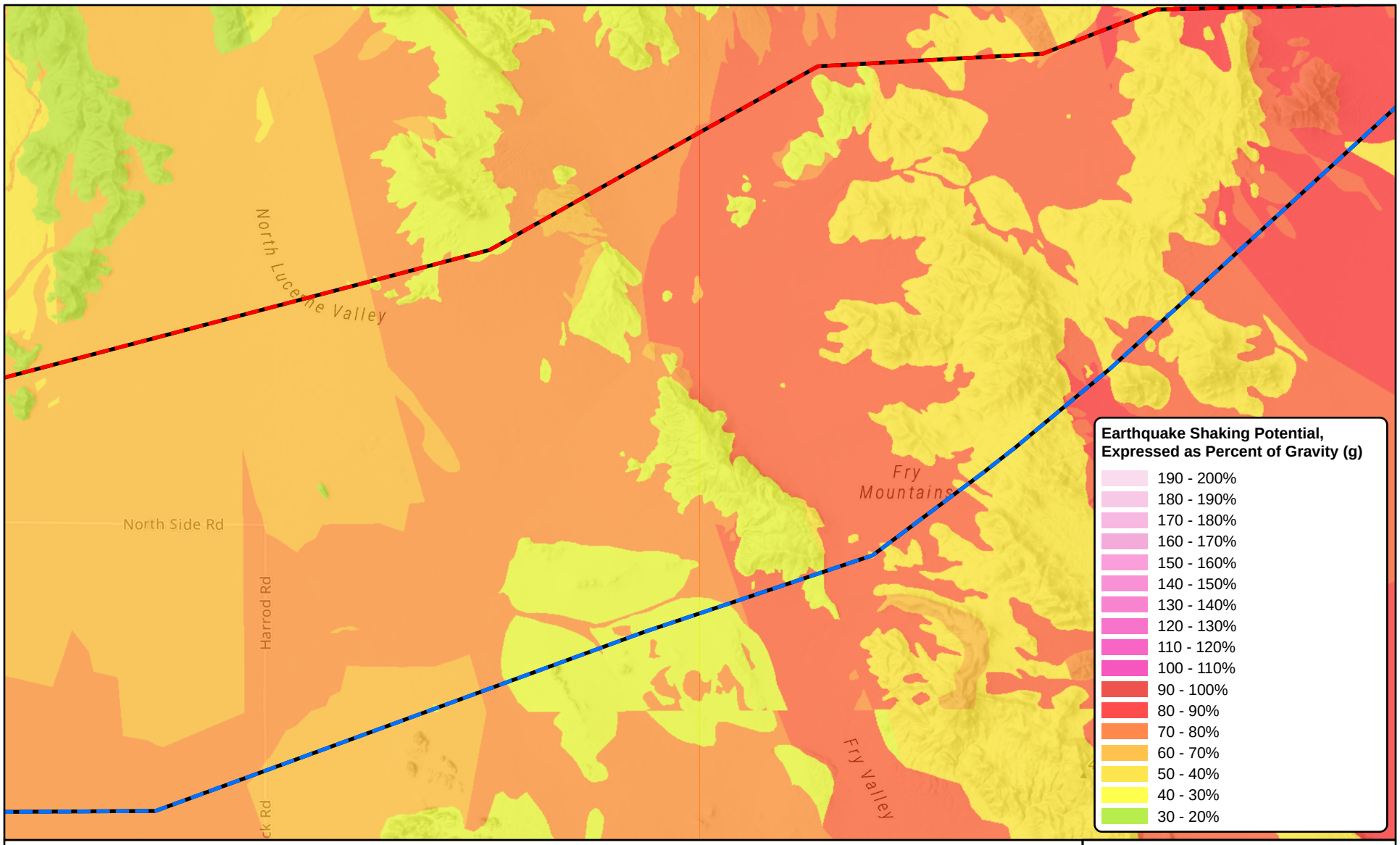

Legend

Substations
Segment 1
Segment 2
County Boundary

NOTES:

1. *Shaking Potential Values Reflect Expected Intermediate Period (1.0 Second) Ground Motions with 2% Exceedance Probability in 50 Years.*
2. *Red = Higher Shaking Potential, Green = Lower Shaking Potential.*
3. *Based on Branum et al. (2016) and CGS (2016).*

Sources: https://gis.conservation.ca.gov/server/rest/services/CGS/MS48_ShakingPotential/MapServer

0 1 2
Miles

ELDORADO-PISGAH-LUGO 220 kV PROJECT

EARTHQUAKE SHAKING POTENTIAL MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.7-4

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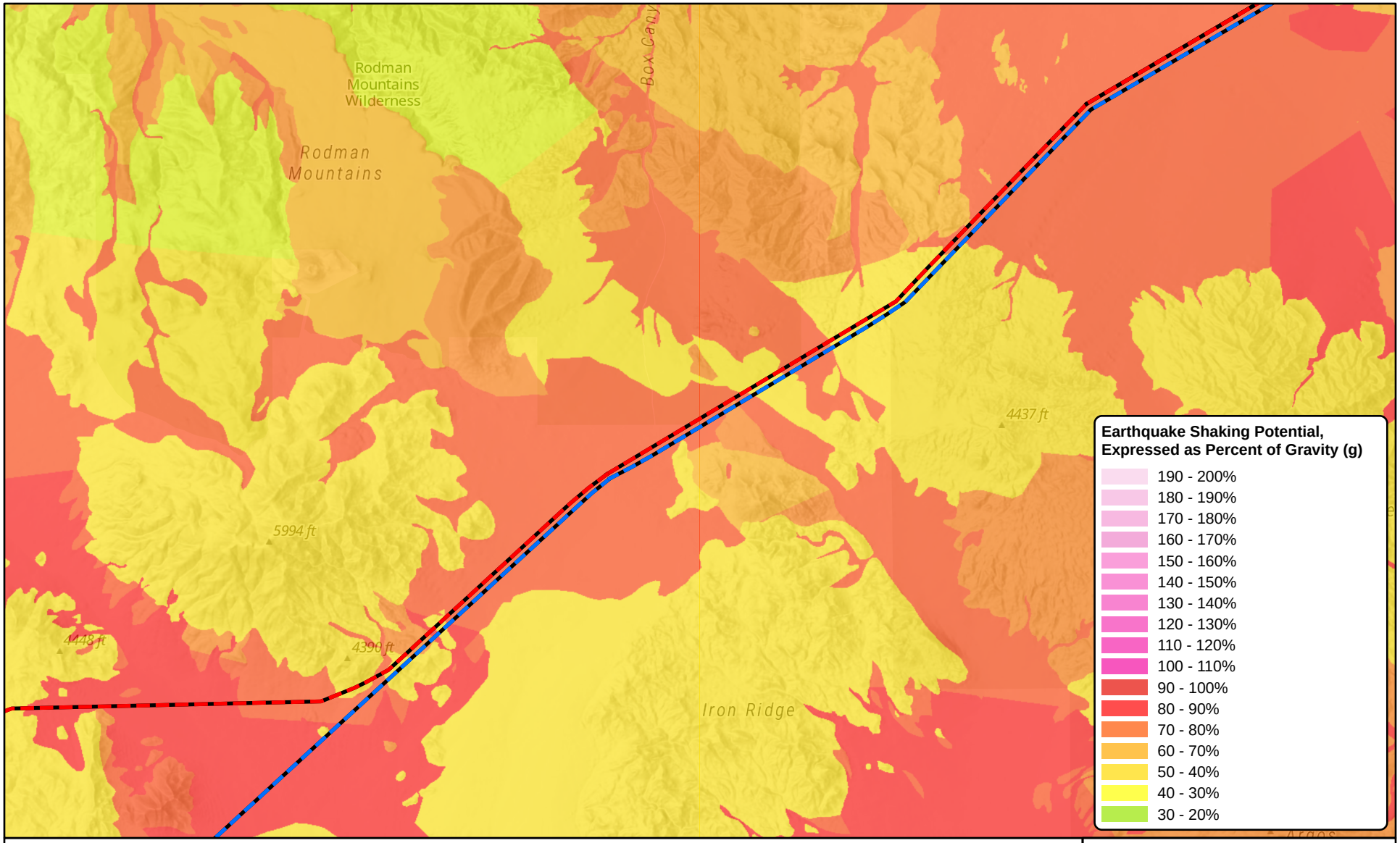

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Legend

Substations
Segment 1
Segment 2
County Boundary

NOTES:

1. Shaking Potential Values Reflect Expected Intermediate Period (1.0 Second) Ground Motions with 2% Exceedance Probability in 50 Years.
2. Red = Higher Shaking Potential, Green = Lower Shaking Potential.
3. Based on Branum et al. (2016) and CGS (2016).

Sources: https://gis.conservation.ca.gov/server/rest/services/CGS/MS48_ShakingPotential/MapServer

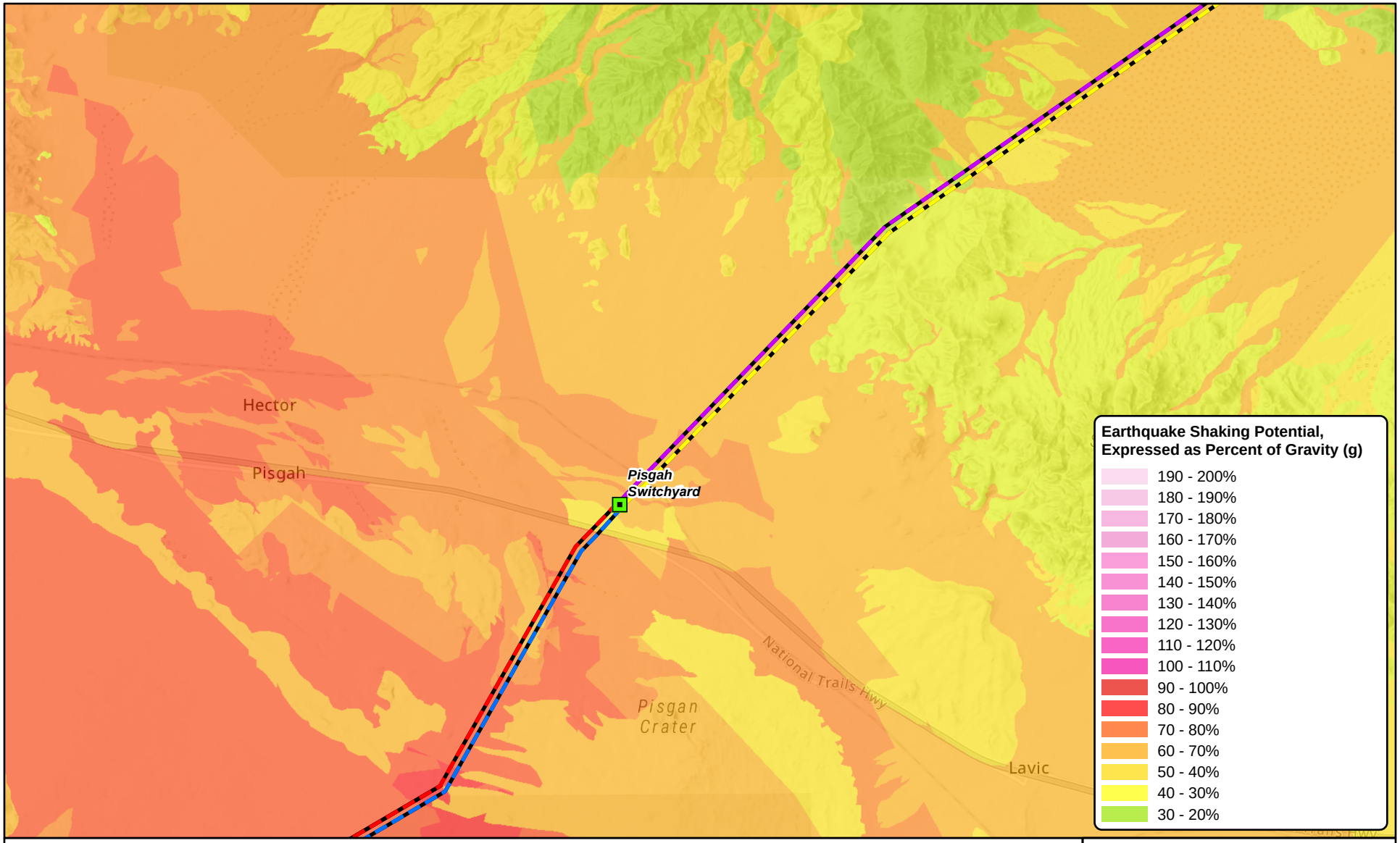
0 1 2
Miles

ELDORADO-PISGAH-LUGO 220 kV PROJECT

EARTHQUAKE SHAKING POTENTIAL MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.7-4



Legend

- Substations
- Segment 1
- Segment 2
- Segment 3
- Segment 4
- County Boundary

NOTES:

1. Shaking Potential Values Reflect Expected Intermediate Period (1.0 Second) Ground Motions with 2% Exceedance Probability in 50 Years.
2. Red = Higher Shaking Potential, Green = Lower Shaking Potential.
3. Based on Branum et al. (2016) and CGS (2016).

Sources: https://gis.conservation.ca.gov/server/rest/services/CGS/MS48_ShakingPotential/MapServer

0 1 2
Miles

ELDORADO-PISGAH-LUGO 220 kV PROJECT

EARTHQUAKE SHAKING POTENTIAL MAP

FIGURE 5.7-4

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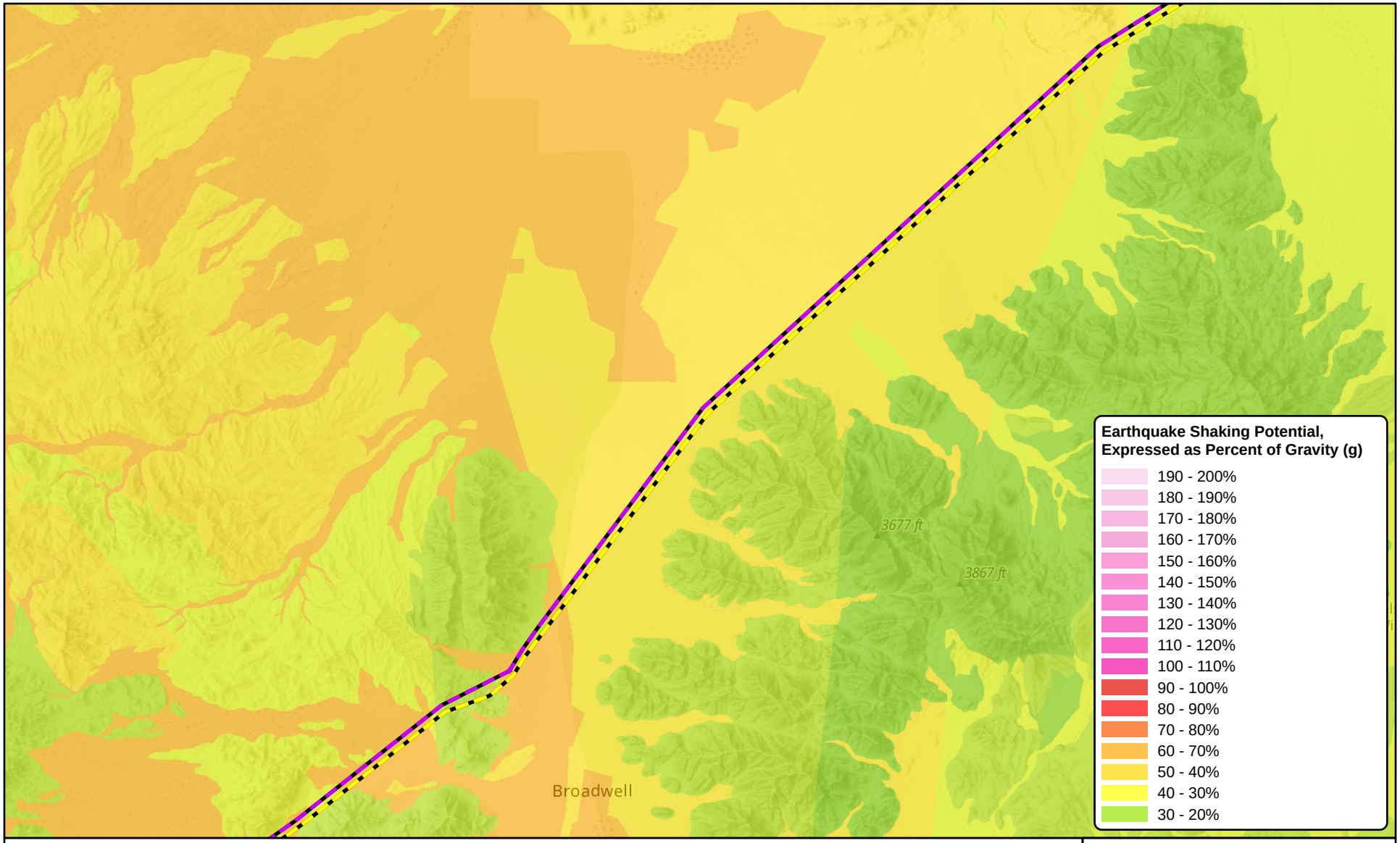

Legend

- Substations
- Segment 4
- Segment 3
- County Boundary

NOTES:

1. *Shaking Potential Values Reflect Expected Intermediate Period (1.0 Second) Ground Motions with 2% Exceedance Probability in 50 Years.*
2. *Red = Higher Shaking Potential, Green = Lower Shaking Potential.*
3. *Based on Branum et al. (2016) and CGS (2016).*

Sources: https://gis.conservation.ca.gov/server/rest/services/CGS/MS48_ShakingPotential/MapServer

0 1 2

Miles

ELDORADO-PISGAH-LUGO 220 kV PROJECT

EARTHQUAKE SHAKING POTENTIAL MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company

ARCADIS

FIGURE 5.7-4

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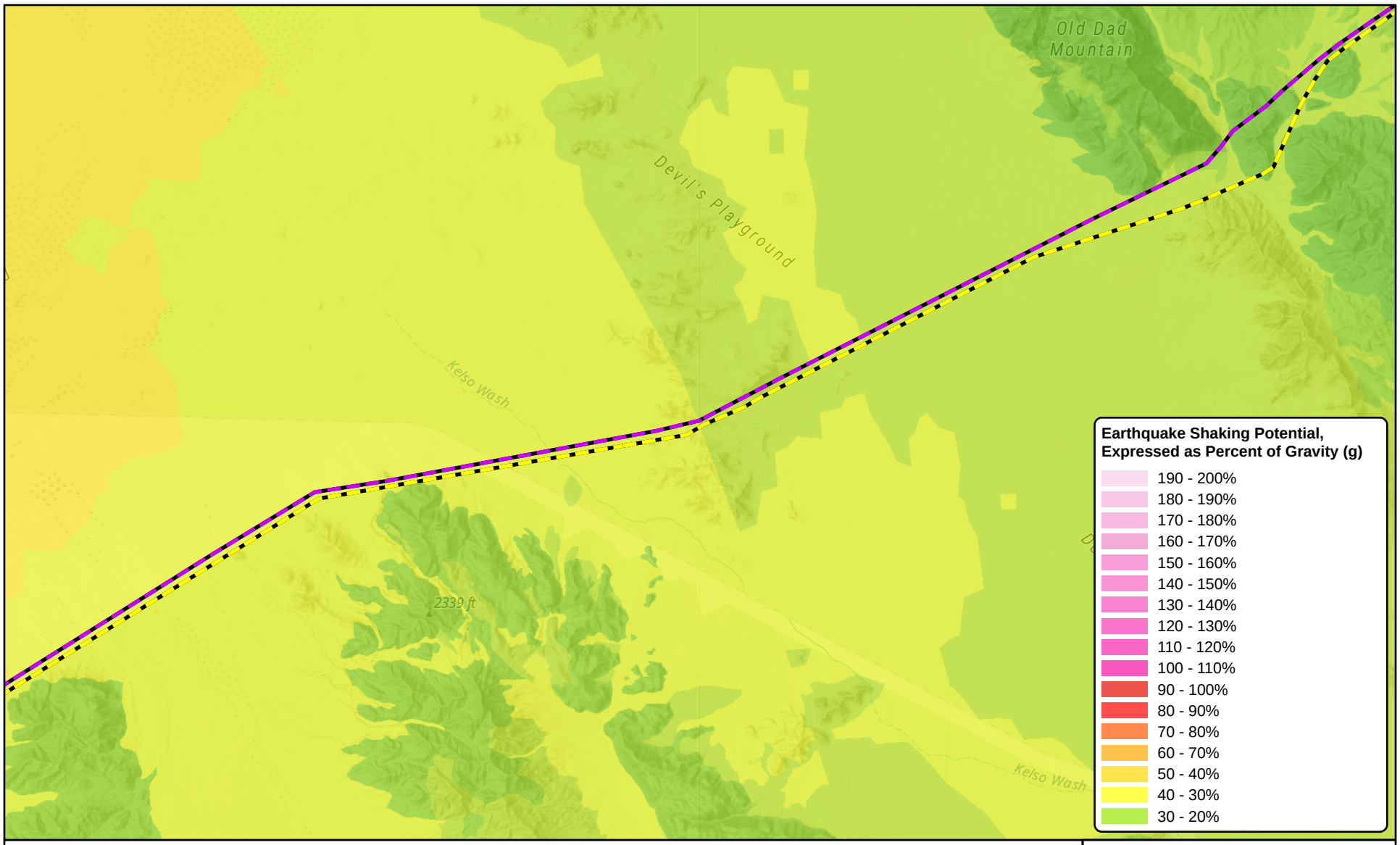

Legend

Substations
Segment 3
Segment 4
County Boundary

NOTES:

1. *Shaking Potential Values Reflect Expected Intermediate Period (1.0 Second) Ground Motions with 2% Exceedance Probability in 50 Years.*
2. *Red = Higher Shaking Potential, Green = Lower Shaking Potential.*
3. *Based on Branum et al. (2016) and CGS (2016).*

Sources: https://gis.conservation.ca.gov/server/rest/services/CGS/MS48_ShakingPotential/MapServer

0 1 2
Miles

ELDORADO-PISGAH-LUGO 220 kV PROJECT

EARTHQUAKE SHAKING POTENTIAL MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.7-4

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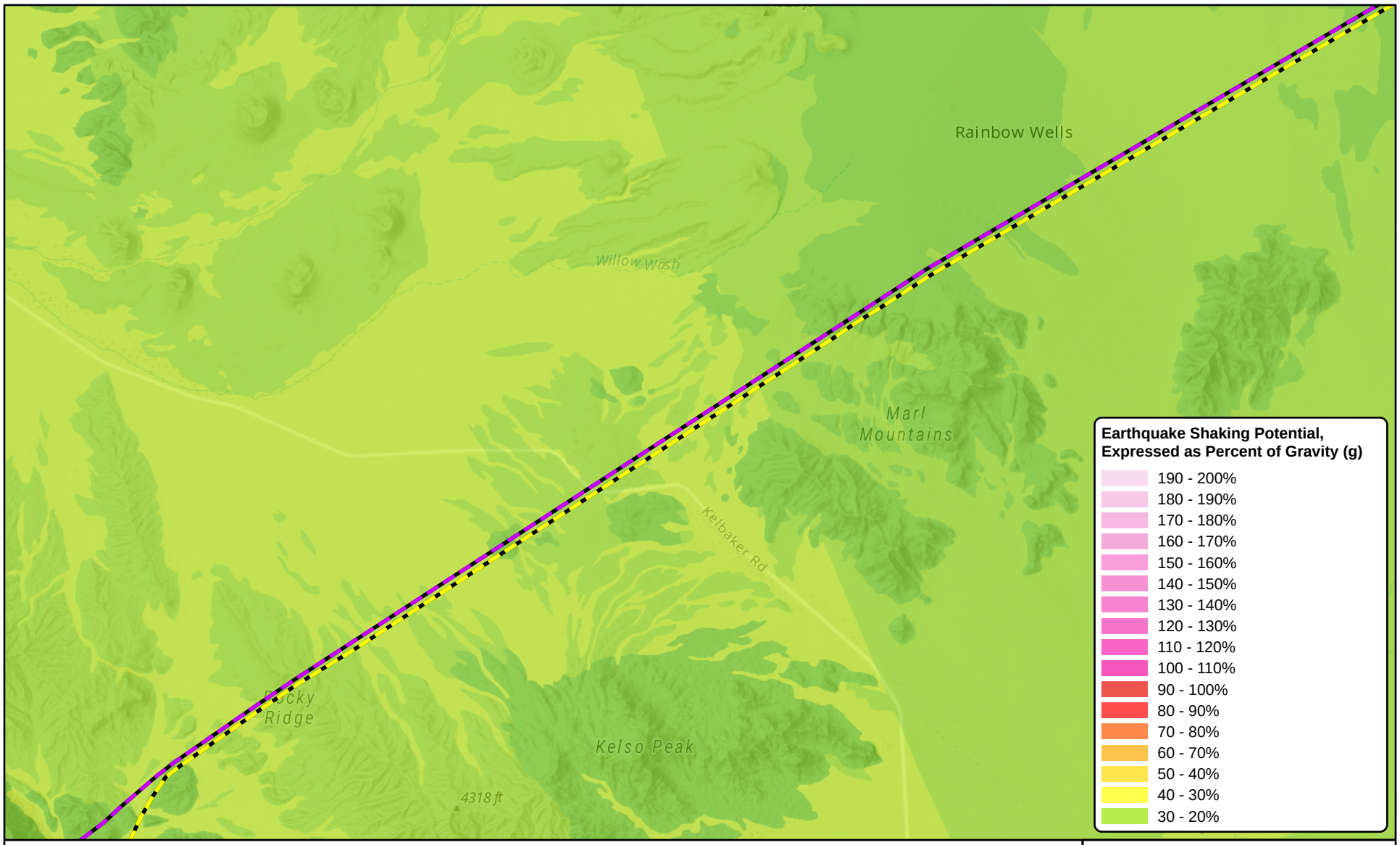


Legend

- Substations
- Segment 4
- Segment 3
- County Boundary

NOTES:

1. Shaking Potential Values Reflect Expected Intermediate Period (1.0 Second) Ground Motions with 2% Exceedance Probability in 50 Years.
2. Red = Higher Shaking Potential, Green = Lower Shaking Potential.
3. Based on Branum et al. (2016) and CGS (2016).

Sources: https://gis.conservation.ca.gov/server/rest/services/CGS/MS48_ShakingPotential/MapServer

0 1 2

Miles

ELDORADO-PISGAH-LUGO 220 kV PROJECT

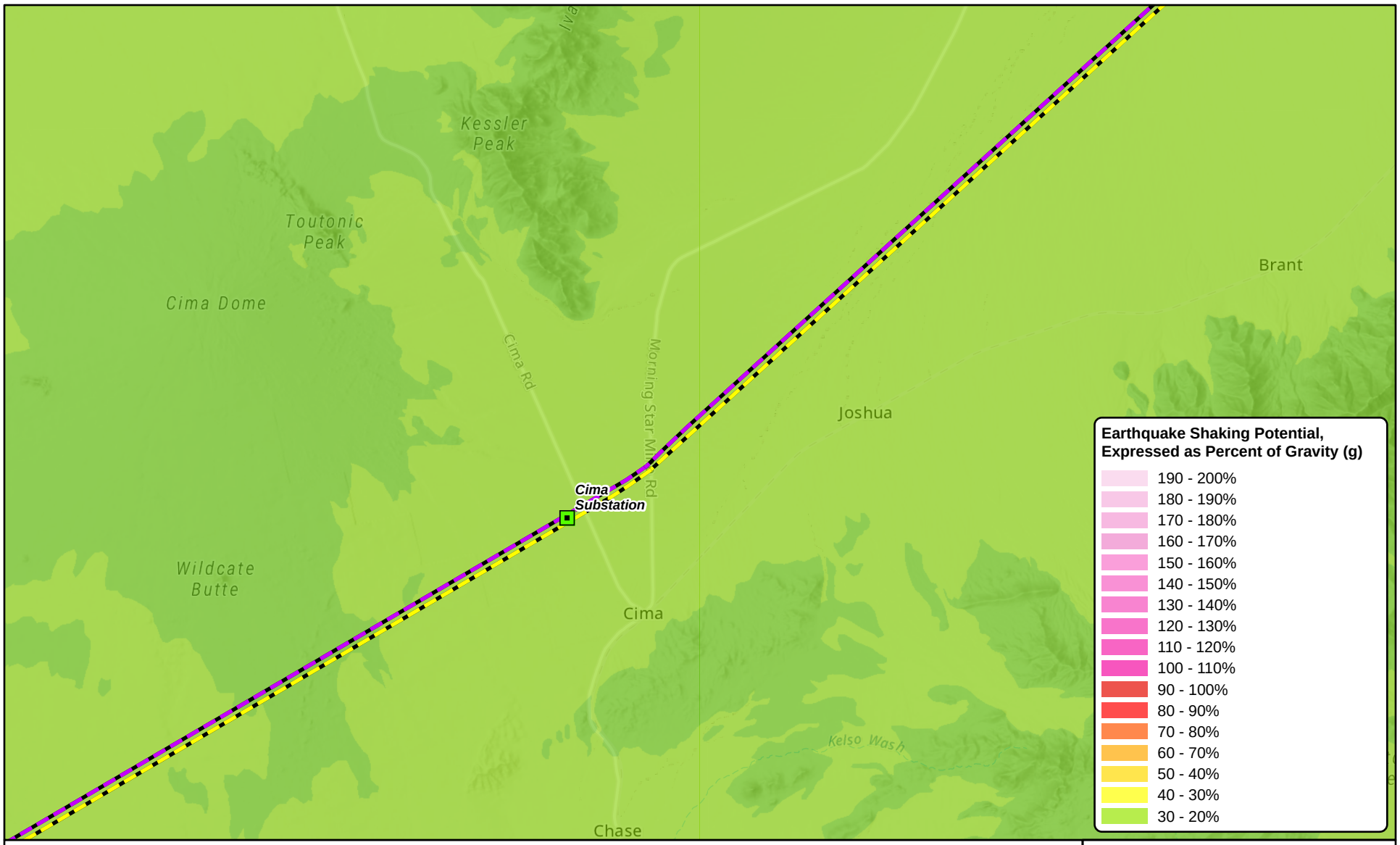
EARTHQUAKE SHAKING POTENTIAL MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company

ARCADIS

FIGURE 5.7-4

Folder: T:_ENV\SCE\SCE_TLR\ArcGIS_Pro\



Legend

- Substations
- Segment 4
- Segment 3
- County Boundary

NOTES:

1. Shaking Potential Values Reflect Expected Intermediate Period (1.0 Second) Ground Motions with 2% Exceedance Probability in 50 Years.
2. Red = Higher Shaking Potential, Green = Lower Shaking Potential.
3. Based on Branum et al. (2016) and CGS (2016).

Sources: https://gis.conservation.ca.gov/server/rest/services/CGS/MS48_ShakingPotential/MapServer

0 1 2

Miles

ELDORADO-PISGAH-LUGO 220 kV PROJECT

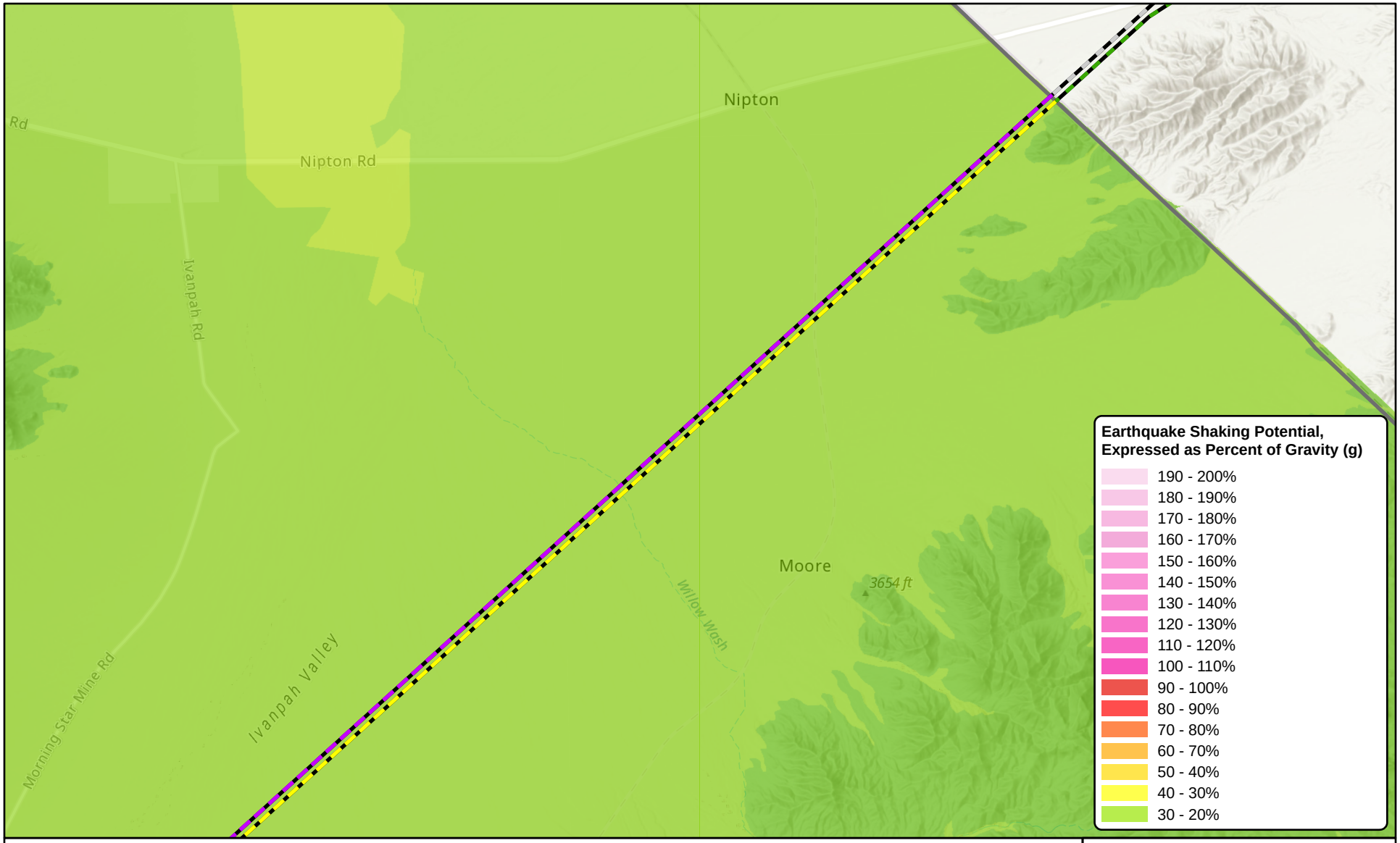
EARTHQUAKE SHAKING POTENTIAL MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company

ARCADIS

FIGURE 5.7-4

Folder: T:_ENV\SCE\SCE_TLR\ArcGIS_Pro\



Legend

- Substations
- Segment 3
- Segment 4
- Segment 5
- Segment 6
- County Boundary

NOTES:

1. *Shaking Potential Values Reflect Expected Intermediate Period (1.0 Second) Ground Motions with 2% Exceedance Probability in 50 Years.*
2. *Red = Higher Shaking Potential, Green = Lower Shaking Potential.*
3. *Based on Branum et al. (2016) and CGS (2016).*

Sources: https://gis.conservation.ca.gov/server/rest/services/CGS/MS48_ShakingPotential/MapServer

0 1 2
Miles

ELDORADO-PISGAH-LUGO 220 kV PROJECT

EARTHQUAKE SHAKING POTENTIAL MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
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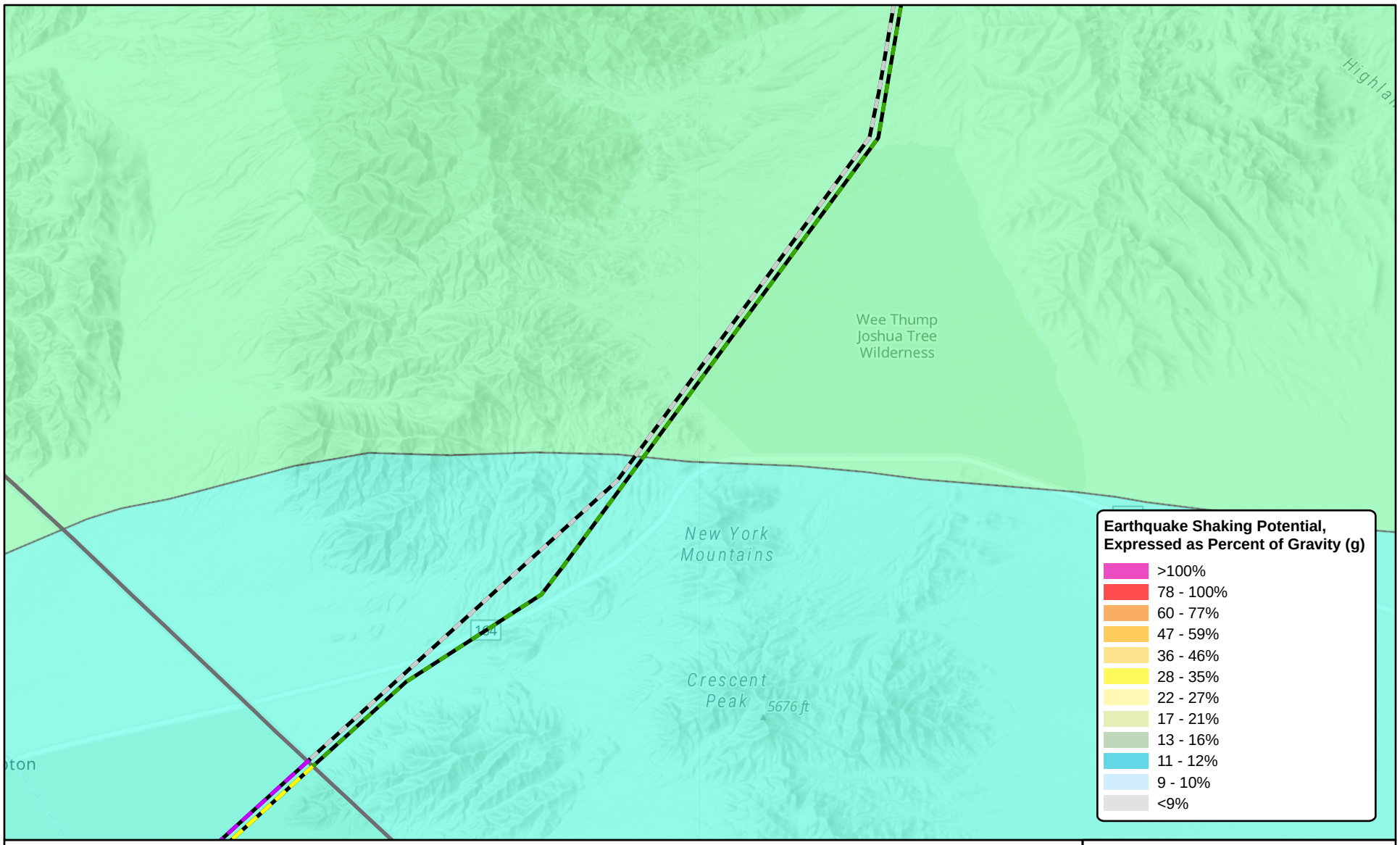
FIGURE 5.7-4

Folder: T:_ENV\SCE\SCE_TLR\ArcGIS_Pro\



Legend

- Substations
- Segment 3
- Segment 4
- Segment 5
- Segment 6
- County Boundary

NOTES:

1. *Shaking Potential Values Reflect Expected Intermediate Period (1.0 Second) Ground Motions with 2% Exceedance Probability in 50 Years.*
2. *Red = Higher Shaking Potential, Green = Lower Shaking Potential.*

Sources: https://earthquake.usgs.gov/arcgis/rest/services/haz/USpga250_2014/MapServer

0 1 2
Miles

ELDORADO-PISGAH-LUGO 220 kV PROJECT

EARTHQUAKE SHAKING POTENTIAL MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
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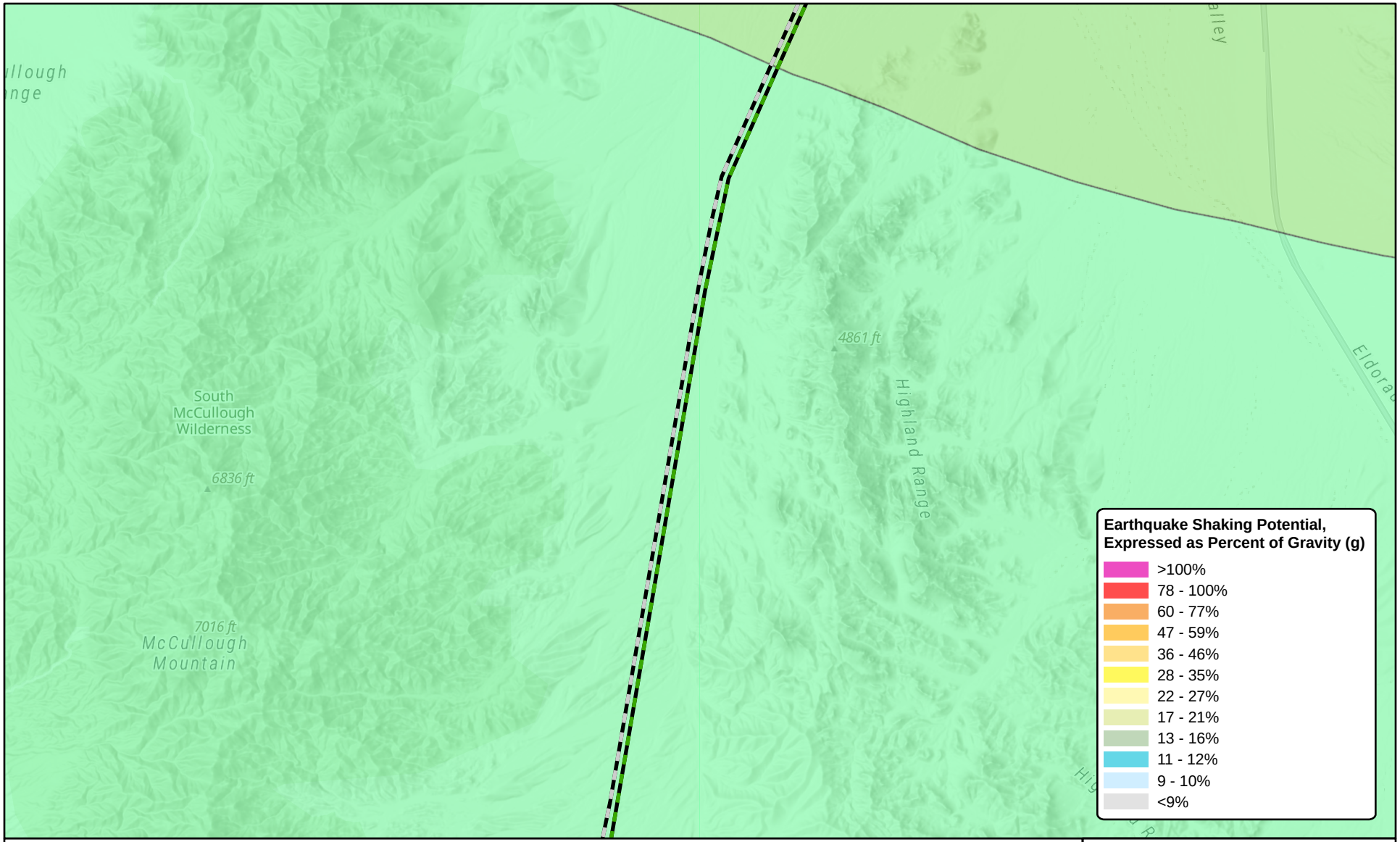
FIGURE 5.7-4

Folder: T:_ENV\SCE\SCE_TLLR\ArcGIS_Pro\



Legend

- Substations
- Segment 6
- Segment 5
- County Boundary

NOTES:

1. *Shaking Potential Values Reflect Expected Intermediate Period (1.0 Second) Ground Motions with 2% Exceedance Probability in 50 Years.*

2. *Red = Higher Shaking Potential, Green = Lower Shaking Potential.*

Sources: https://earthquake.usgs.gov/arcgis/rest/services/haz/USpga250_2014/MapServer

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Miles

ELDORADO-PISGAH-LUGO 220 kV PROJECT

EARTHQUAKE SHAKING POTENTIAL MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company

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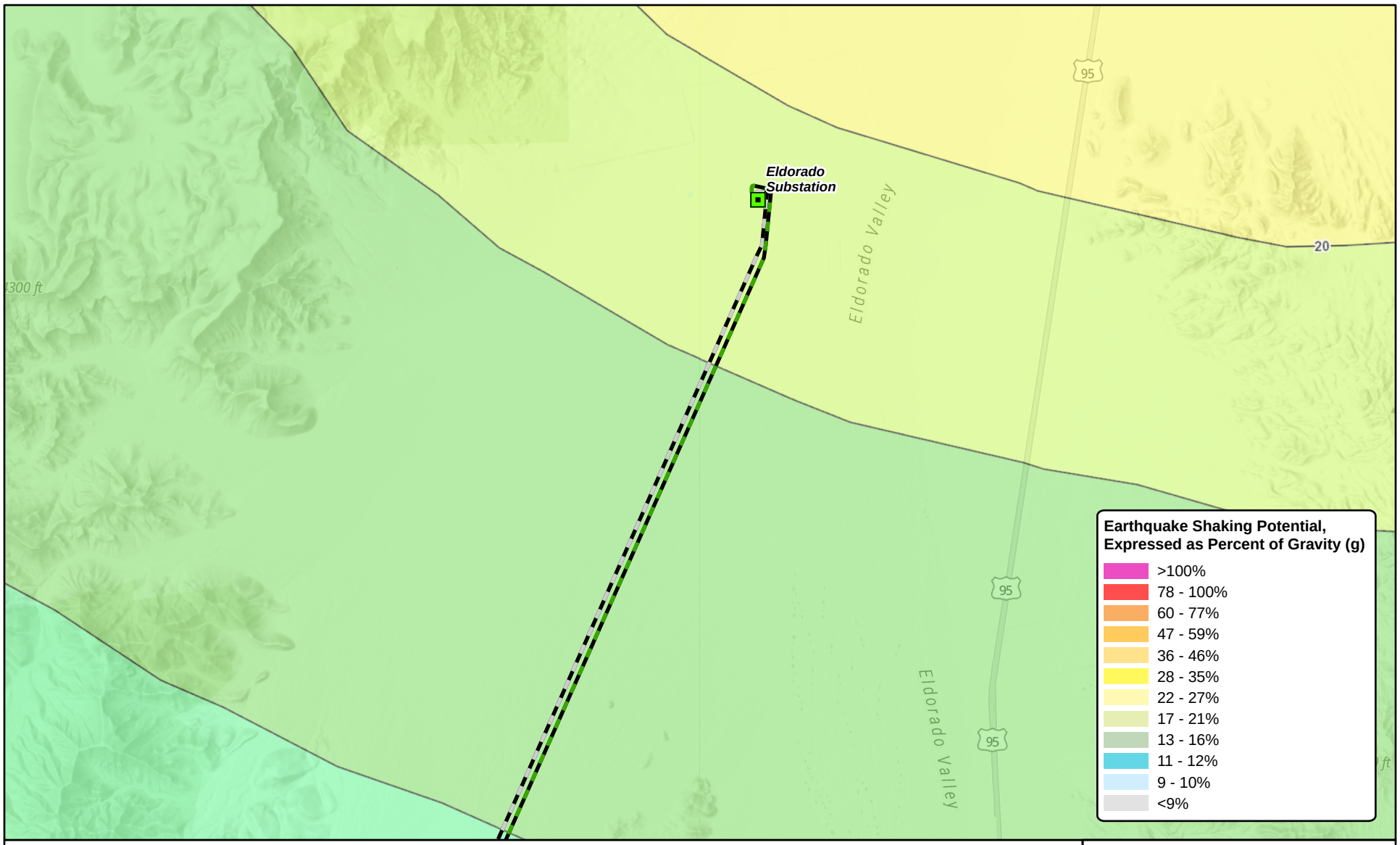
FIGURE 5.7-4

Folder: T:_ENV\SCE\SCE_TLLR\ArcGIS_Pro\



Legend

- Substations
- Segment 6
- Segment 5
- County Boundary

NOTES:

1. *Shaking Potential Values Reflect Expected Intermediate Period (1.0 Second) Ground Motions with 2% Exceedance Probability in 50 Years.*
2. *Red = Higher Shaking Potential, Green = Lower Shaking Potential.*

Sources: https://earthquake.usgs.gov/arcgis/rest/services/haz/USpga250_2014/MapServer

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Miles

ELDORADO-PISGAH-LUGO 220 kV PROJECT

EARTHQUAKE SHAKING POTENTIAL MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company

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FIGURE 5.7-4

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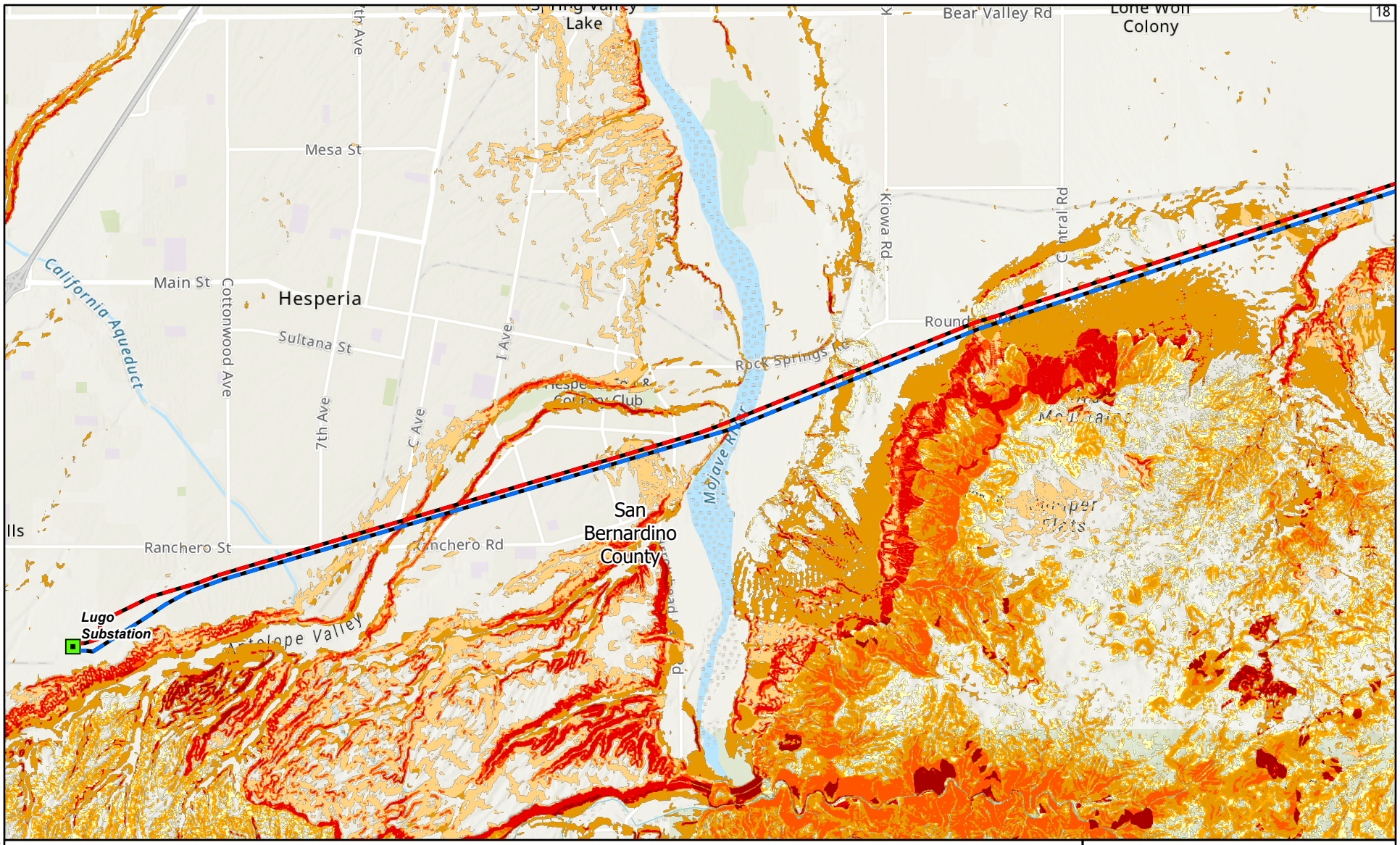

Legend

- Substations
- Segment 1
- Segment 2
- County Boundary

Value

- Greater Landslide Susceptibility
- Lower Landslide Susceptibility

NOTES:

1. Landslide susceptibility reflects rock strength and slope class.

2. Based on Wills et al. (2011) and CGS (2018C).

Sources: https://gis.conservation.ca.gov/server/rest/services/CGS/MS48_ShakingPotential/MapServer

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Miles

ELDORADO-PISGAH-LUGO 220 kV PROJECT

LANDSLIDE SUSCEPTIBILITY MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company

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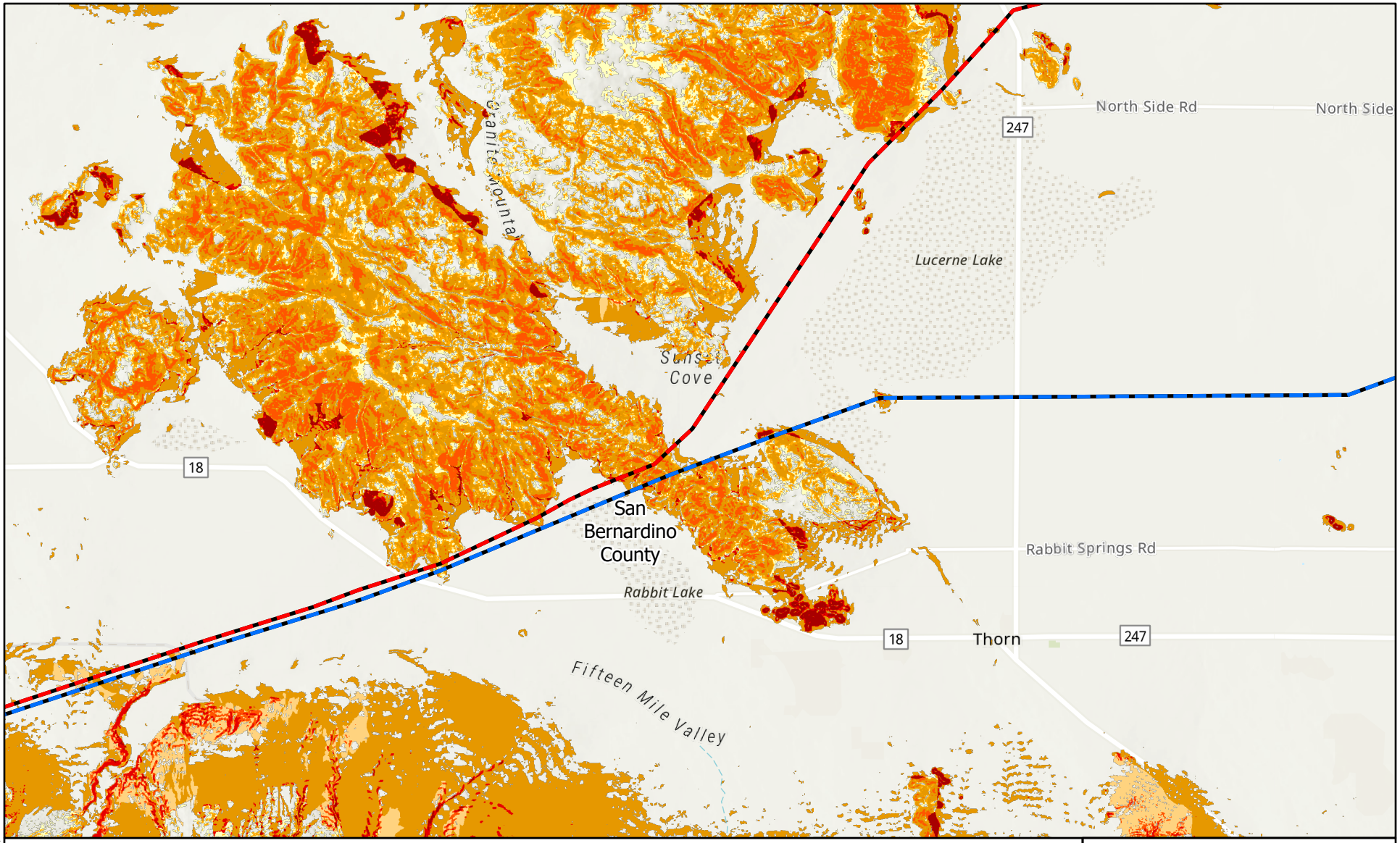
FIGURE 5.7-5

Folder: T:_ENV\SCE\SCE_TLLR\ArcGIS_Pro\



Legend

- Substations
- Segment 1
- Segment 2
- County Boundary

Value

- Greater Landslide Susceptibility
- Lower Landslide Susceptibility

NOTES:

1. Landslide susceptibility reflects rock strength and slope class.

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Sources: https://gis.conservation.ca.gov/server/rest/services/CGS/MS48_ShakingPotential/MapServer

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Miles

ELDORADO-PISGAH-LUGO 220 kV PROJECT

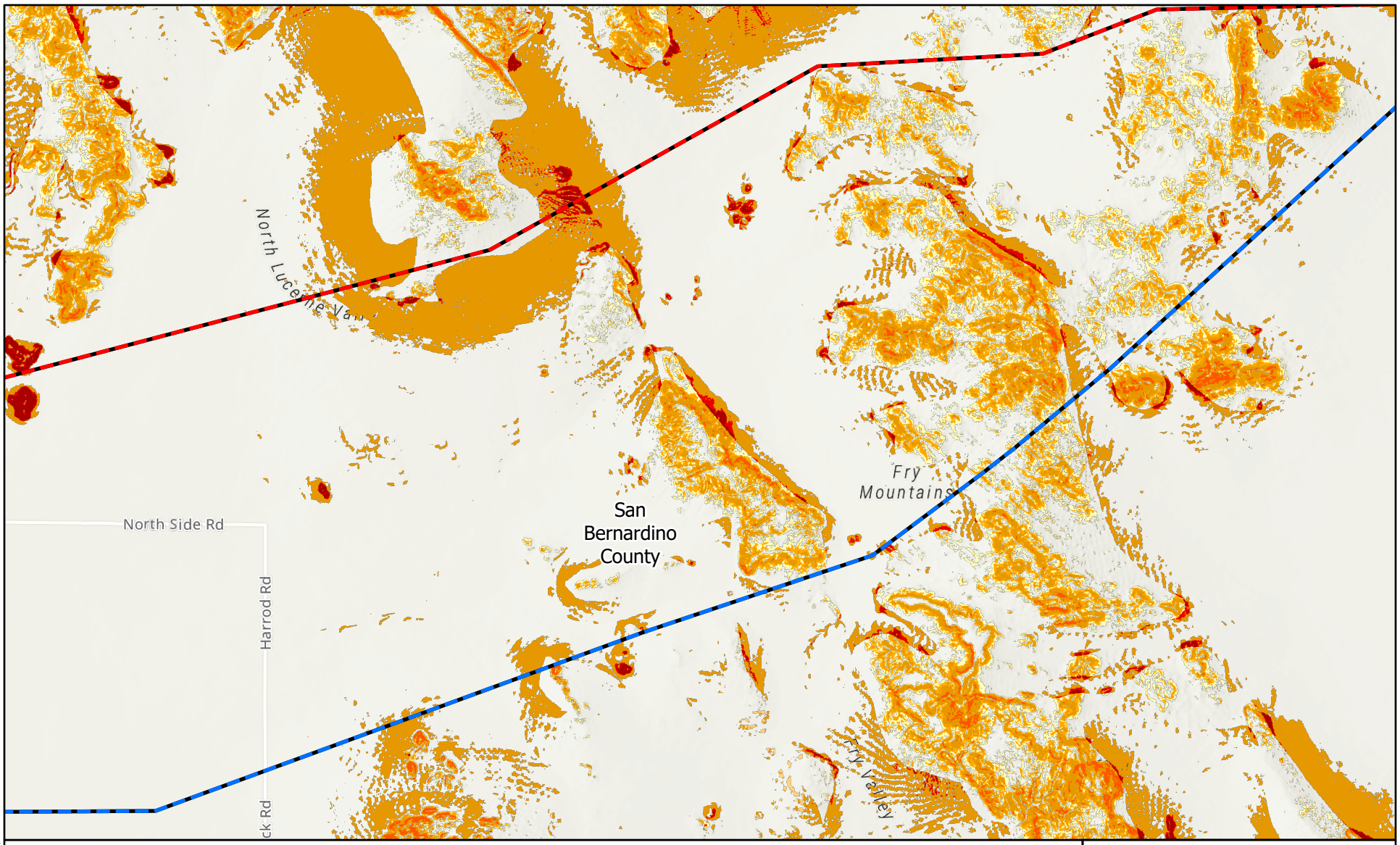
LANDSLIDE SUSCEPTIBILITY MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company

ARCADIS

FIGURE 5.7-5

Folder: T:_ENV\SCE\SCE_TLLR\ArcGIS_Pro\



Legend

- Substations
- Segment 1
- Segment 2
- County Boundary

Value

- Greater Landslide Susceptibility
- Lower Landslide Susceptibility

NOTES:
1. Landslide susceptibility reflects rock strength and slope class.
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Sources: https://gis.conservation.ca.gov/server/rest/services/CGS/MS48_ShakingPotential/MapServer

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Miles

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ELDORADO-PISGAH-LUGO 220 kV PROJECT

LANDSLIDE SUSCEPTIBILITY MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
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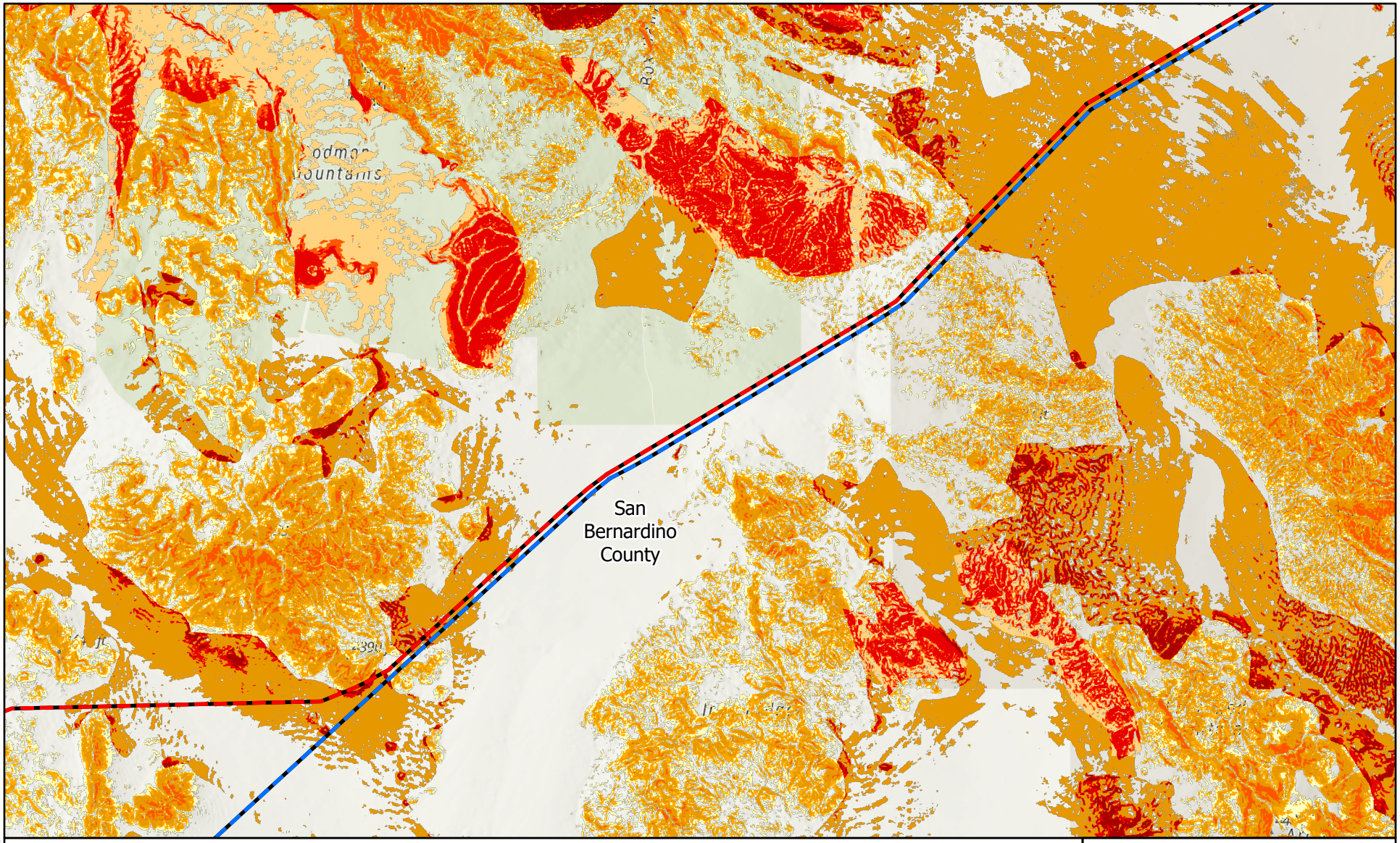
FIGURE 5.7-5

Folder: T:_ENV\SCE\SCE_TLLR\ArcGIS_Pro\



Legend

- Substations
- Segment 1
- Segment 2
- County Boundary

Value

- Greater Landslide Susceptibility
- Lower Landslide Susceptibility

NOTES:
1. Landslide susceptibility reflects rock strength and slope class.
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Miles

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ELDORADO-PISGAH-LUGO 220 kV PROJECT

LANDSLIDE SUSCEPTIBILITY MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
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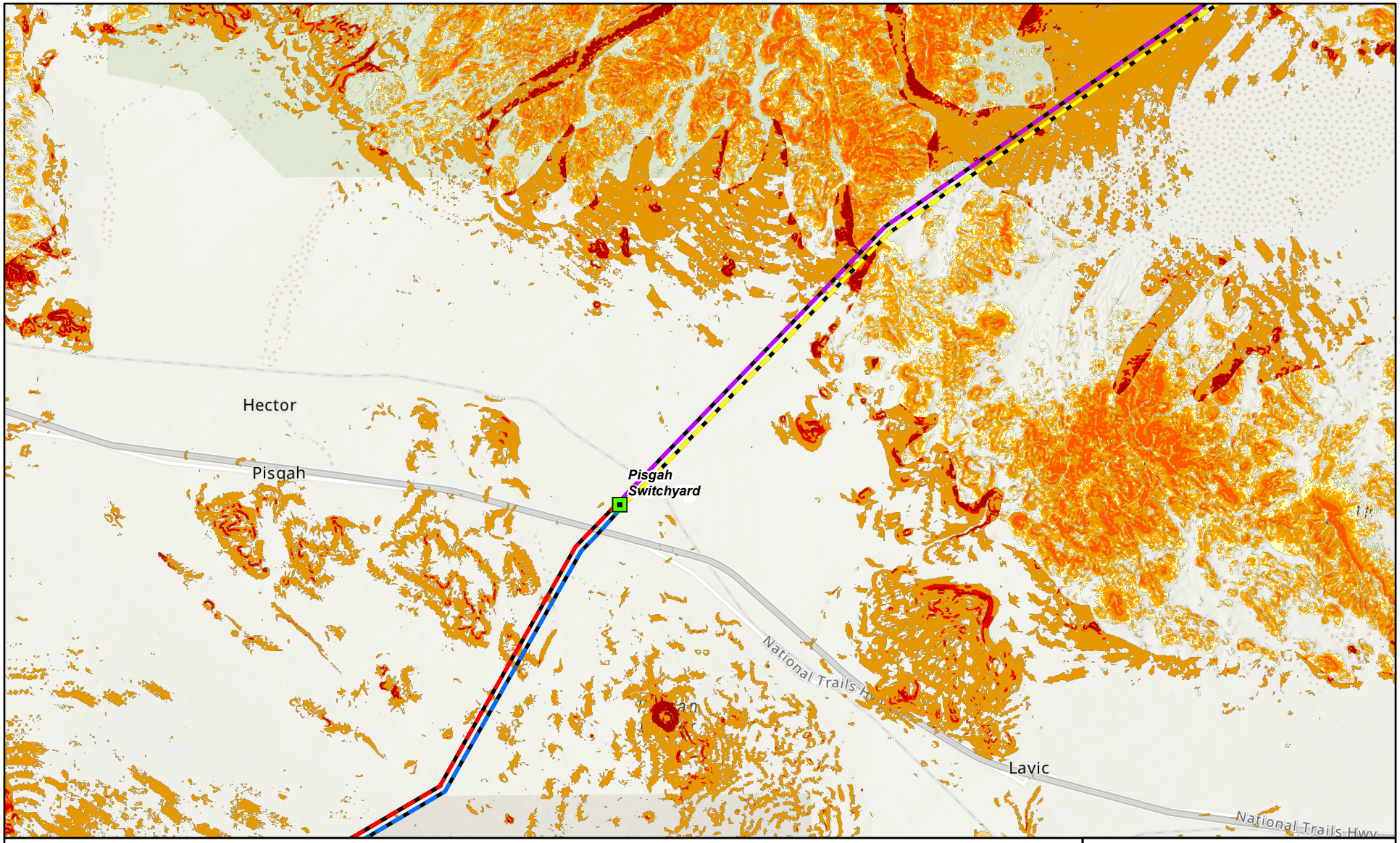
FIGURE 5.7-5

Folder: T:_ENV\SCE\SCE_TLLR\ArcGIS_Pro\



Legend

- Substations
- Segment 1
- Segment 2
- Segment 3
- Segment 4
- County Boundary
- Value
- Greater Landslide Susceptibility
- Lower Landslide Susceptibility

NOTES:
1. Landslide susceptibility reflects rock strength and slope class.

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Miles

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ELDORADO-PISGAH-LUGO 220 kV PROJECT

LANDSLIDE SUSCEPTIBILITY MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
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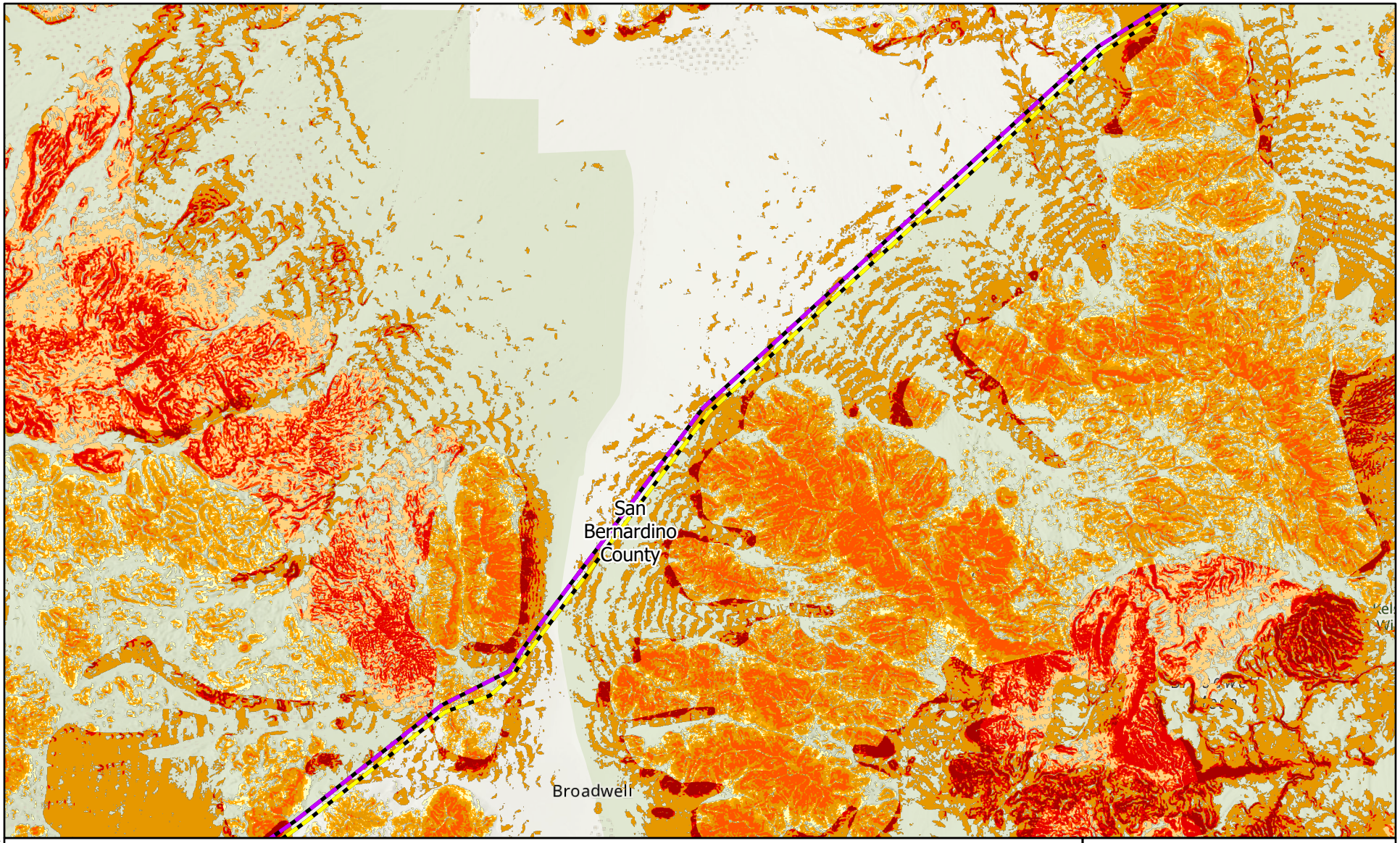
FIGURE 5.7-5

Folder: T:_ENV\SCE\SCE_TLLR\ArcGIS_Pro\



Legend

- Substations
- Segment 3
- Segment 4
- County Boundary

Value

- Greater Landslide Susceptibility
- Lower Landslide Susceptibility

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Miles

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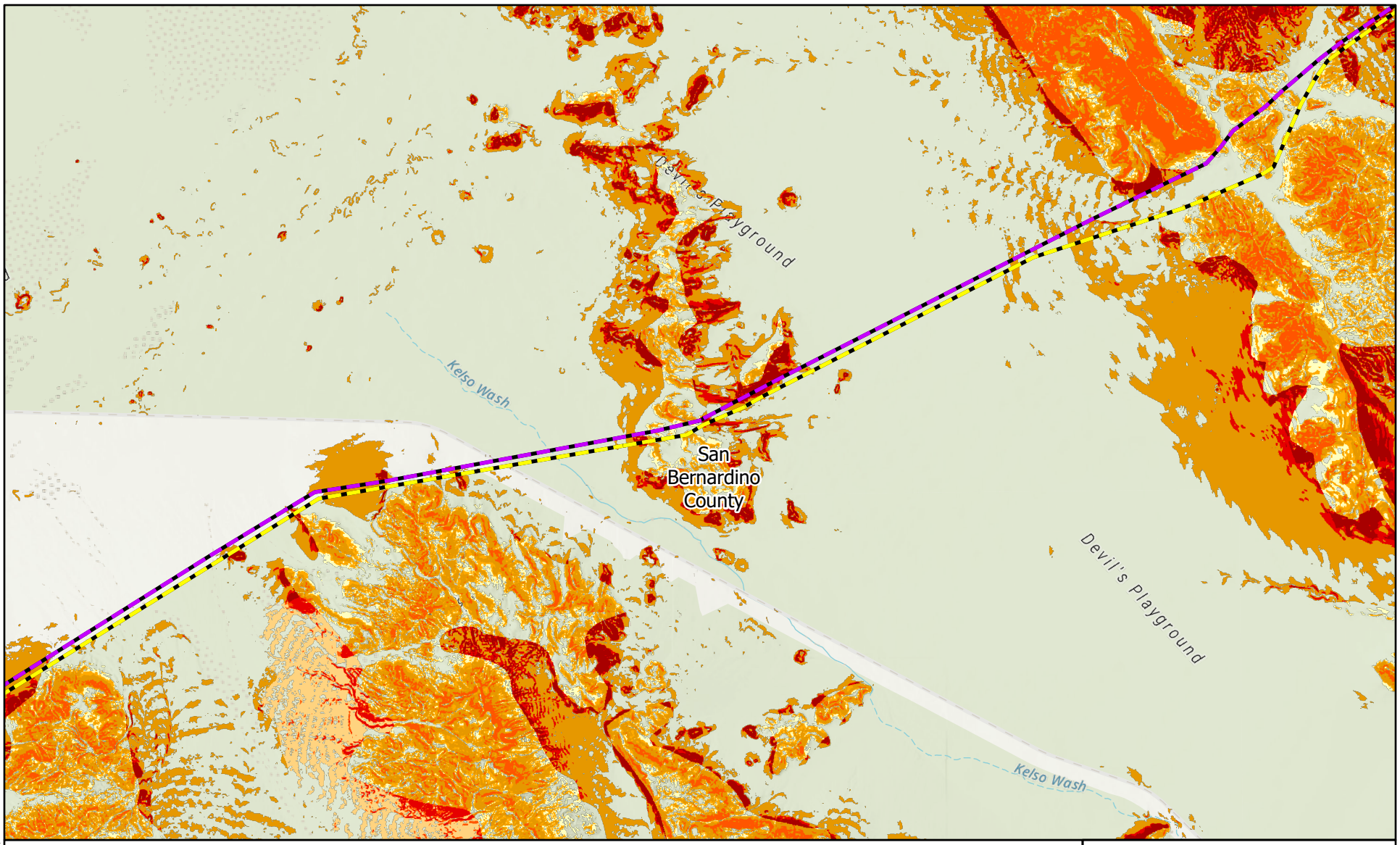
ELDORADO-PISGAH-LUGO 220 kV PROJECT

LANDSLIDE SUSCEPTIBILITY MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.7-5

Folder: T:_ENV\SCE\SCE_TLLR\ArcGIS_Pro\



Legend

- Substations
- Segment 3
- Segment 4
- County Boundary

Value

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Miles

ELDORADO-PISGAH-LUGO 220 kV PROJECT

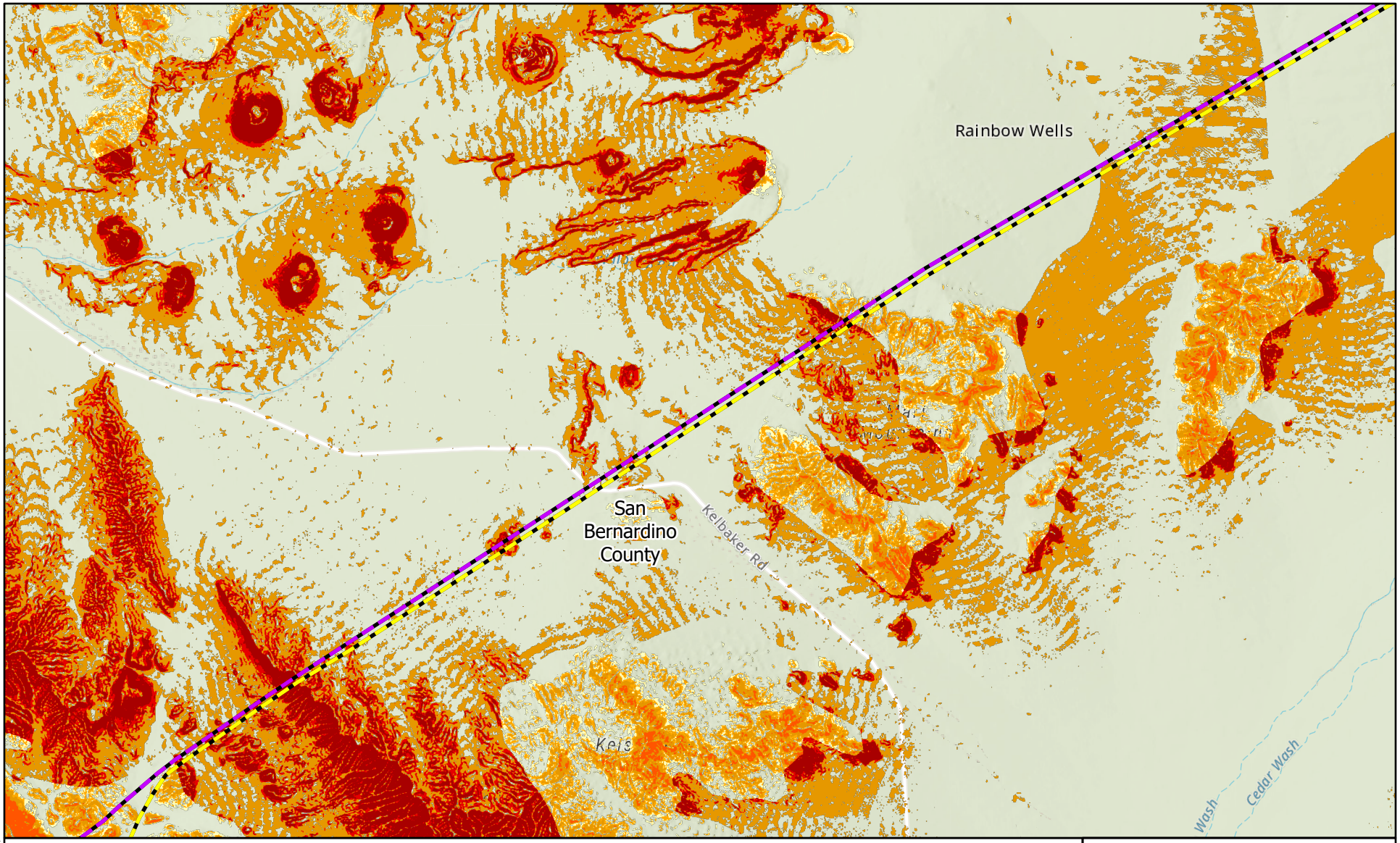
LANDSLIDE SUSCEPTIBILITY MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company

ARCADIS

FIGURE 5.7-5

Folder: T:_ENV\SCE\SCE_TLLR\ArcGIS_Pro\



Legend

- Substations
- Segment 3
- Segment 4
- County Boundary

Value

- Greater Landslide Susceptibility
- Lower Landslide Susceptibility

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Miles

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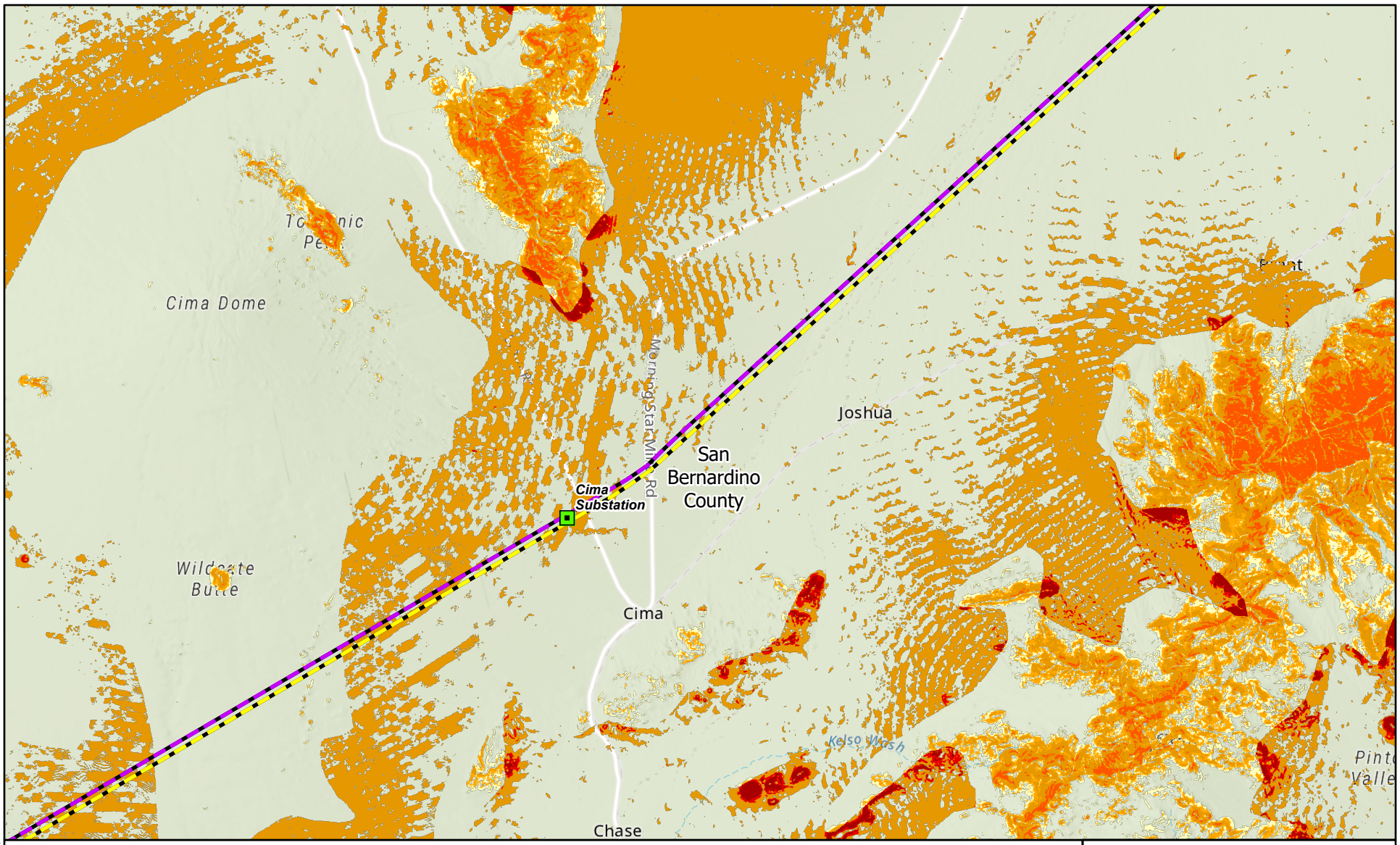
ELDORADO-PISGAH-LUGO 220 kV PROJECT

LANDSLIDE SUSCEPTIBILITY MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.7-5

Folder: T:_ENV\SCE\SCE_TLLR\ArcGIS_Pro\



Legend

- Substations
- Segment 3
- Segment 4
- County Boundary

Value

- Greater Landslide Susceptibility
- Lower Landslide Susceptibility

NOTES:
1. Landslide susceptibility reflects rock strength and slope class.
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Sources: https://gis.conservation.ca.gov/server/rest/services/CGS/MS48_ShakingPotential/MapServer

0 1 2 Miles

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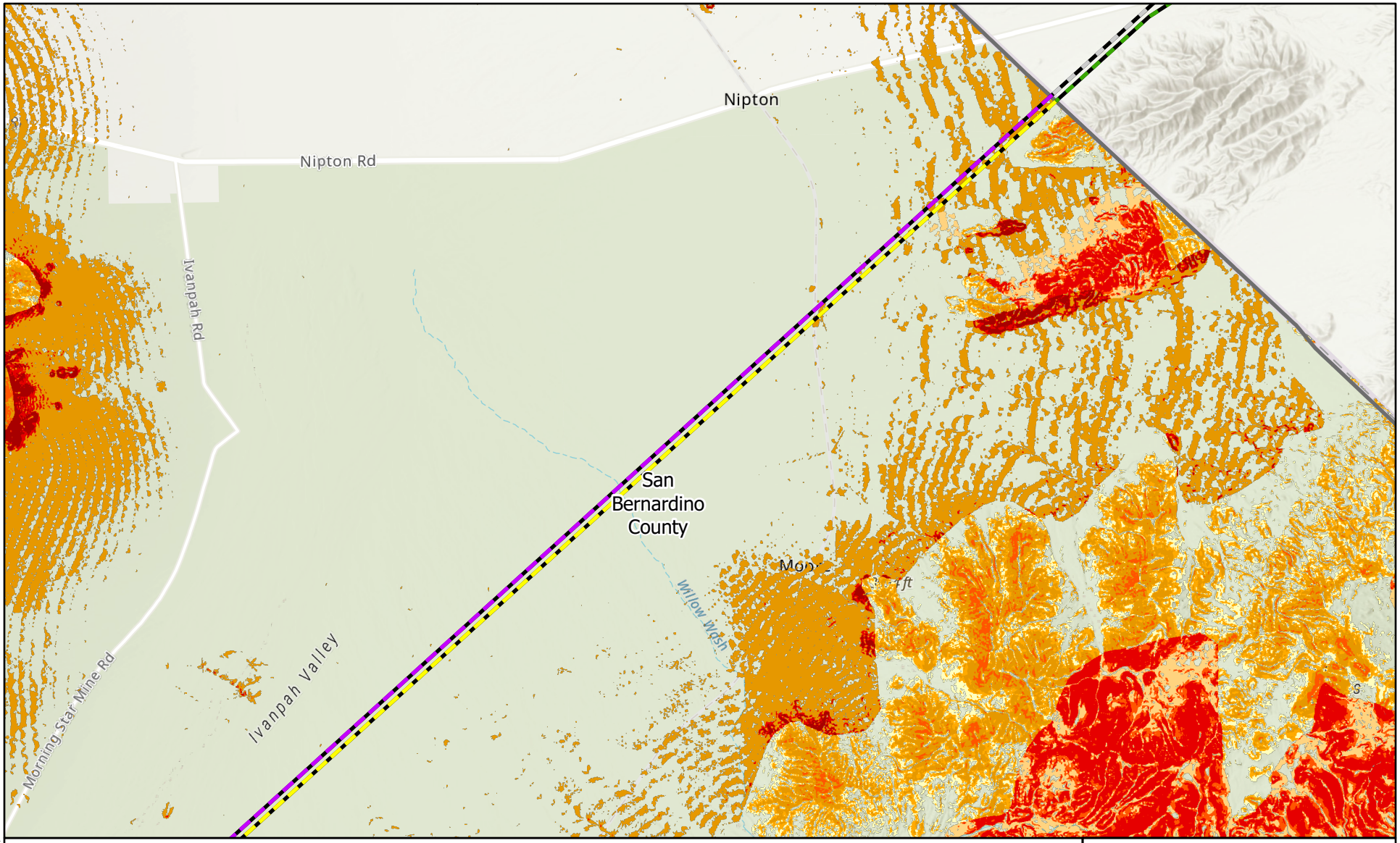
ELDORADO-PISGAH-LUGO 220 kV PROJECT

LANDSLIDE SUSCEPTIBILITY MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company | ARCADIS

FIGURE 5.7-5

Folder: T:_ENV\SCE\SCE_TLLR\ArcGIS_Pro\



Legend

- Substations
- Segment 3
- Segment 4
- Segment 5
- Segment 6
- County Boundary
- Value
- Greater Landslide Susceptibility
- Lower Landslide Susceptibility

NOTES:

1. Landslide susceptibility reflects rock strength and slope class.

2. Based on Wills et al. (2011) and CGS (2018C).

Sources: https://gis.conservation.ca.gov/server/rest/services/CGS/MS48_ShakingPotential/MapServer

0 1 2 Miles

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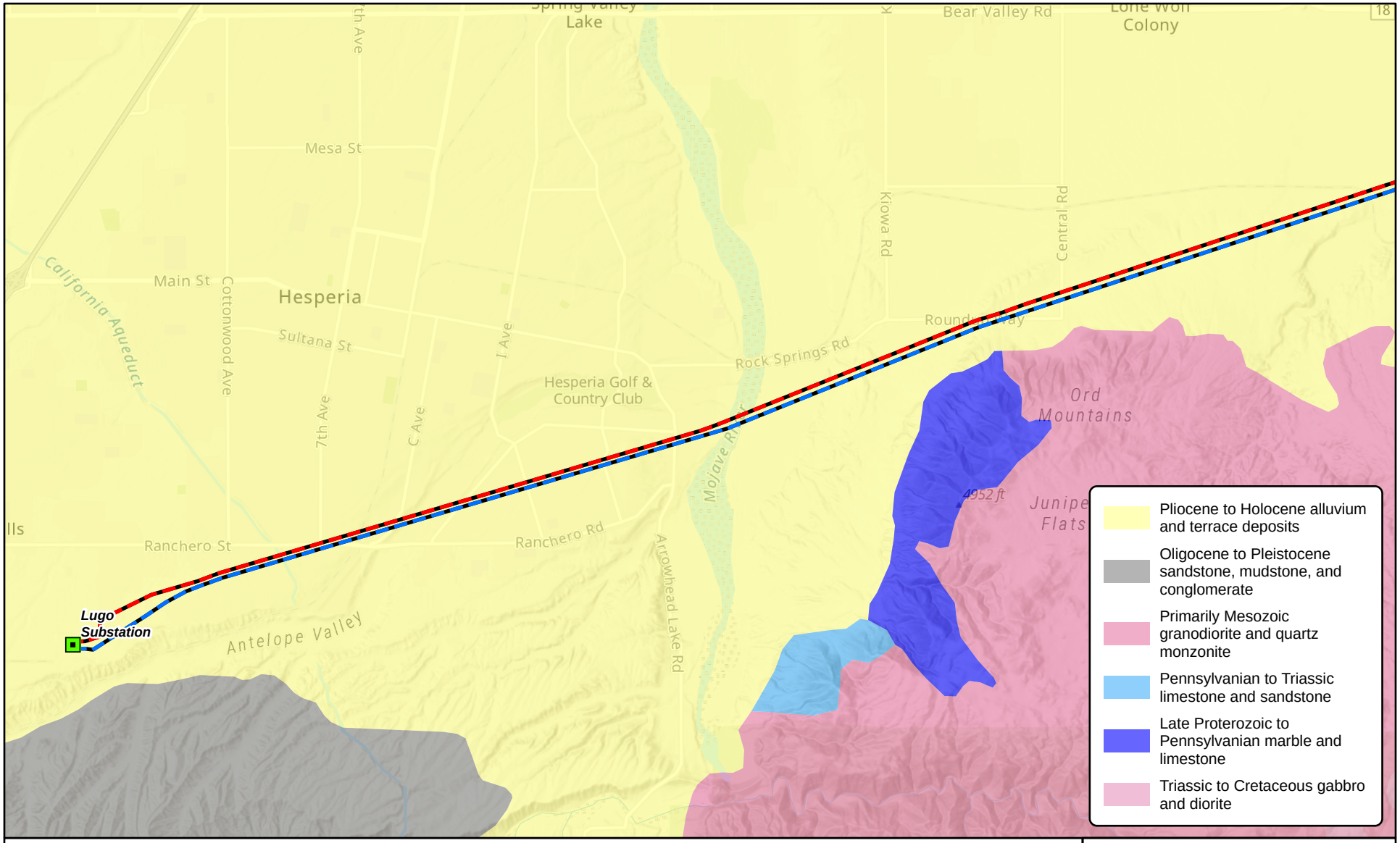
ELDORADO-PISGAH-LUGO 220 kV PROJECT

LANDSLIDE SUSCEPTIBILITY MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company | ARCADIS

FIGURE 5.7-5

Folder: T:_ENV\SCE\SCE_TLLR\ArcGIS_Pro\



Legend

- Substations
- Segment 1
- Segment 2
- County Boundary

NOTES:
Sources: USGS 2019a

0 1 2
Miles

Page 1 of 13

ELDORADO-PISGAH-LUGO 220 kV PROJECT

GENERALIZED GEOLOGIC MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
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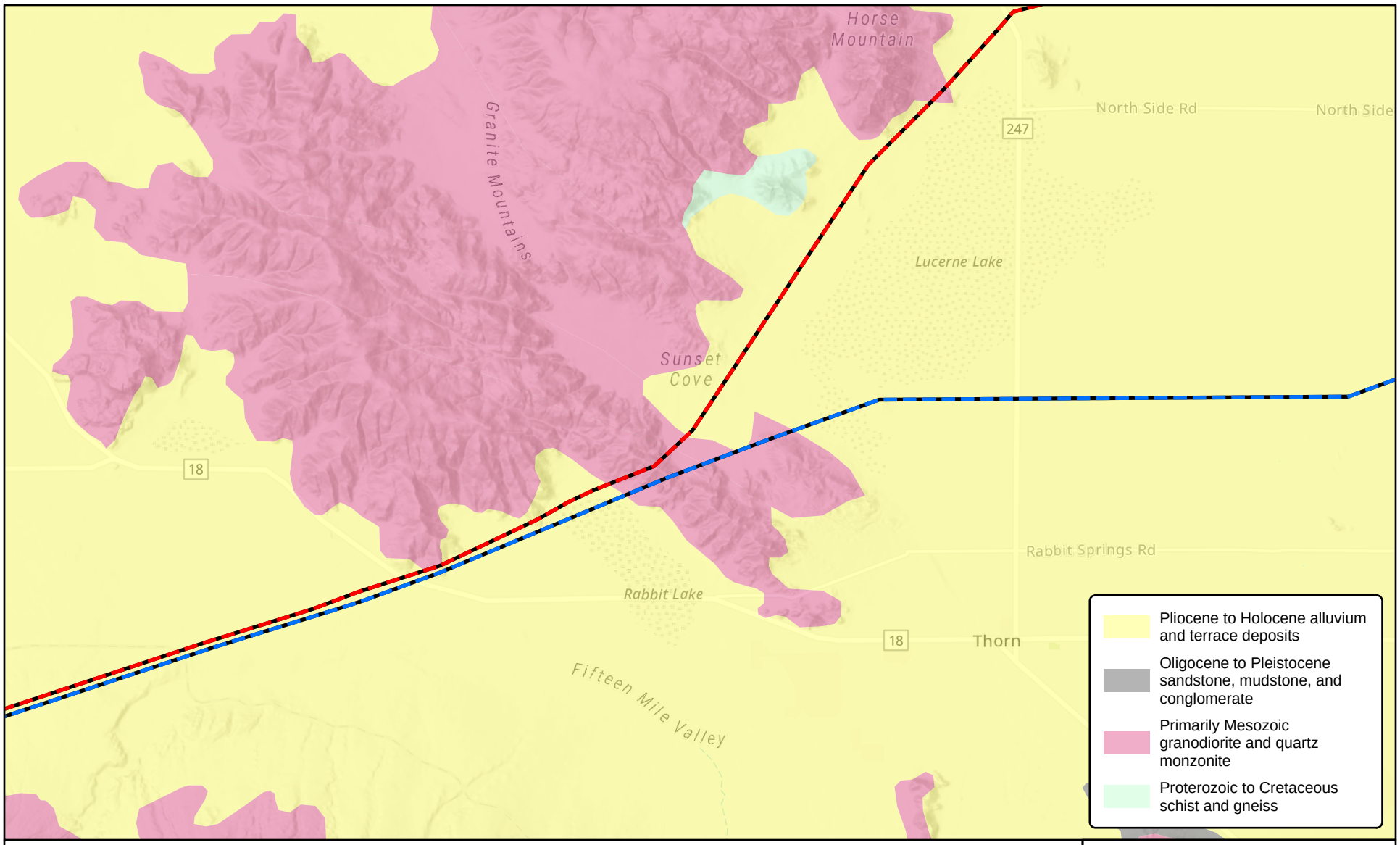
FIGURE 5.7-6

Folder: T:_ENV\SCE\SCE_TLR\ArcGIS_Pro\



Legend

Substations
Segment 1
Segment 2
County Boundary

NOTES:
Sources: USGS 2019a

0 1 2
Miles

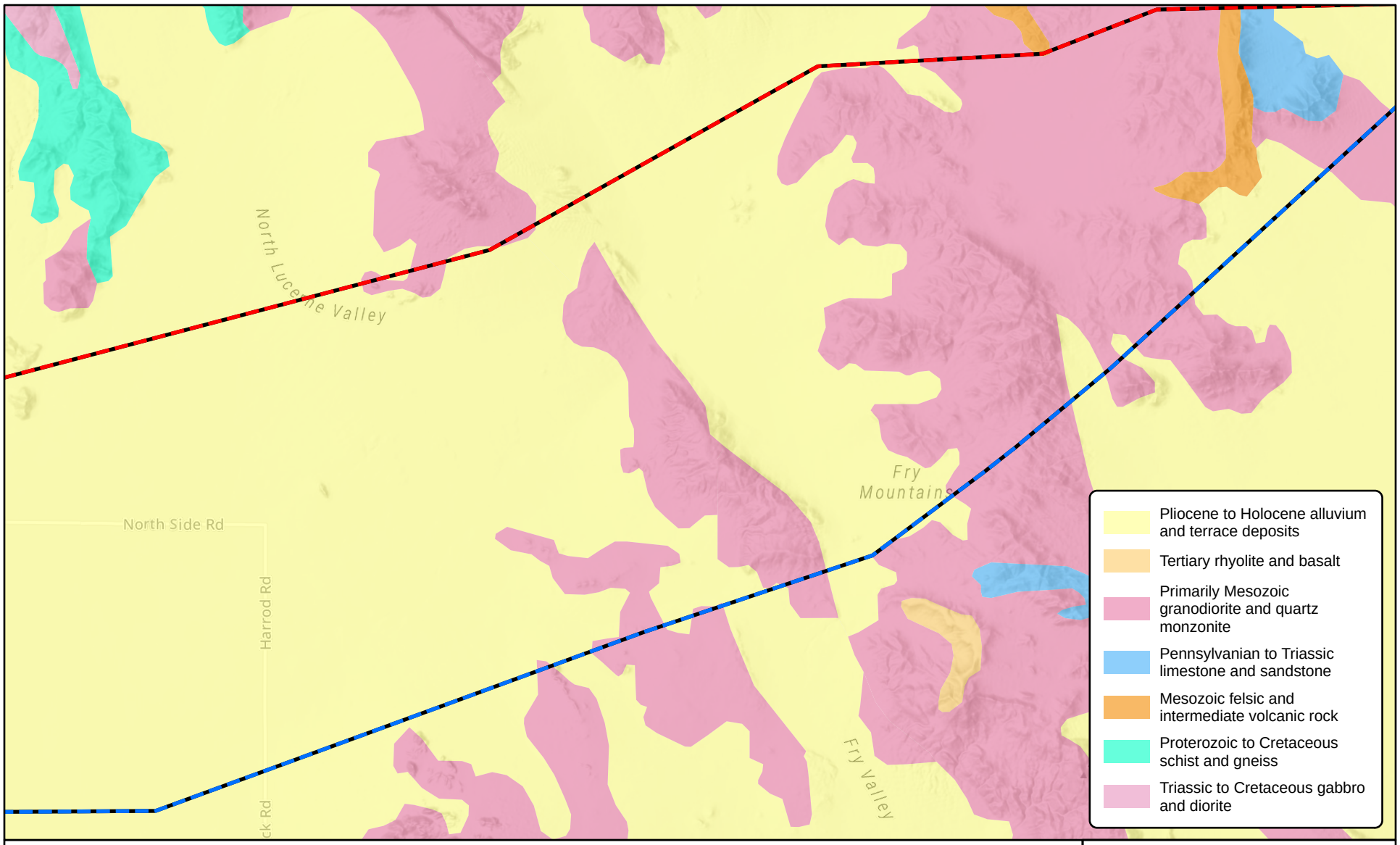
ELDORADO-PISGAH-LUGO 220 kV PROJECT

GENERALIZED GEOLOGIC MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.7-6

Folder: T:_ENV\SCE\SCE_TLR\ArcGIS_Pro\



Legend

Substations
Segment 1
Segment 2
County Boundary

NOTES:
Sources: USGS 2019a

0 1 2
Miles

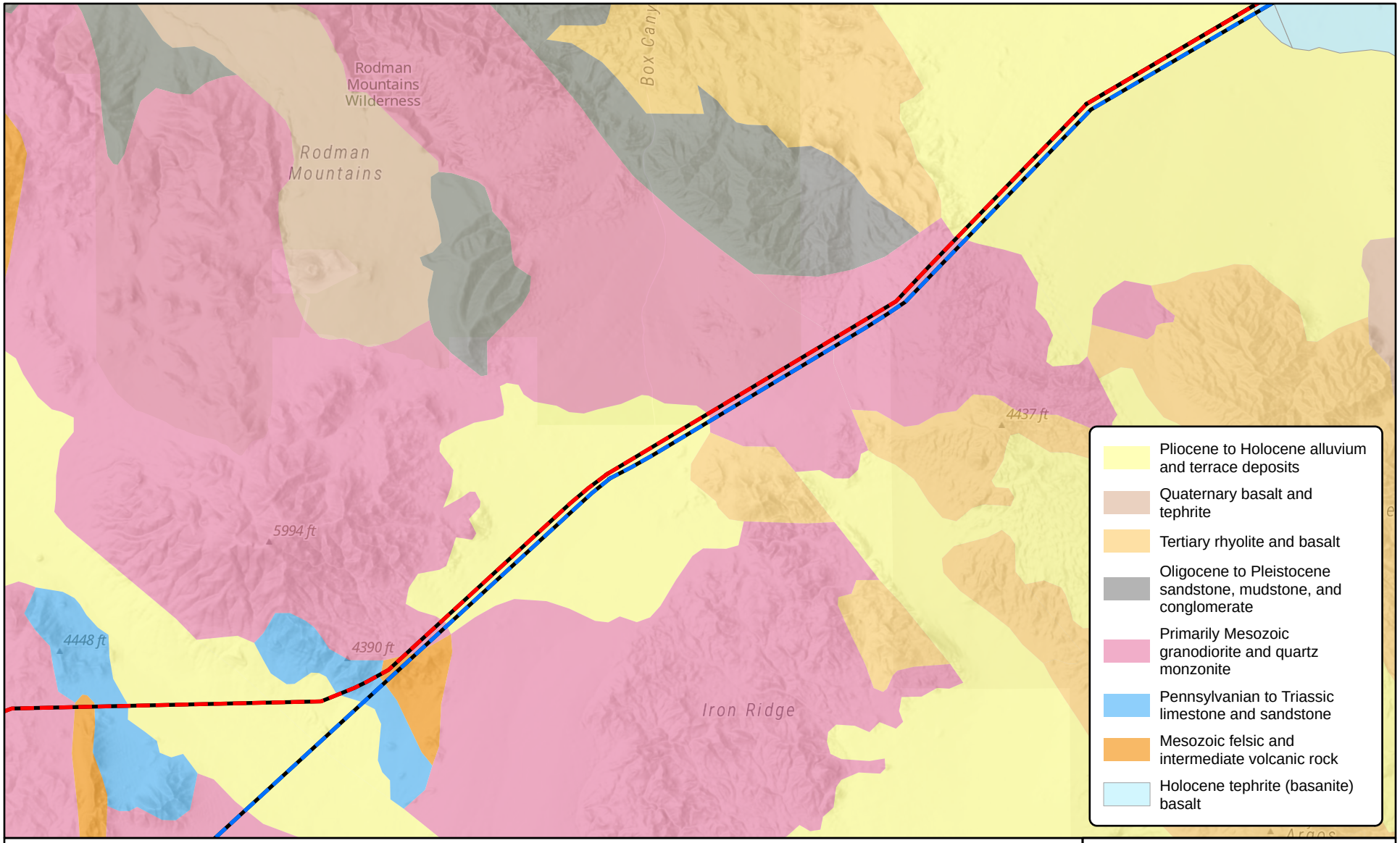
ELDORADO-PISGAH-LUGO 220 kV PROJECT

GENERALIZED GEOLOGIC MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.7-6

Folder: T:_ENV\SCE\SCE_TLR\ArcGIS_Pro\



Legend

- Substations
- Segment 1
- Segment 2
- County Boundary

NOTES:
Sources: USGS 2019a

0 1 2
Miles

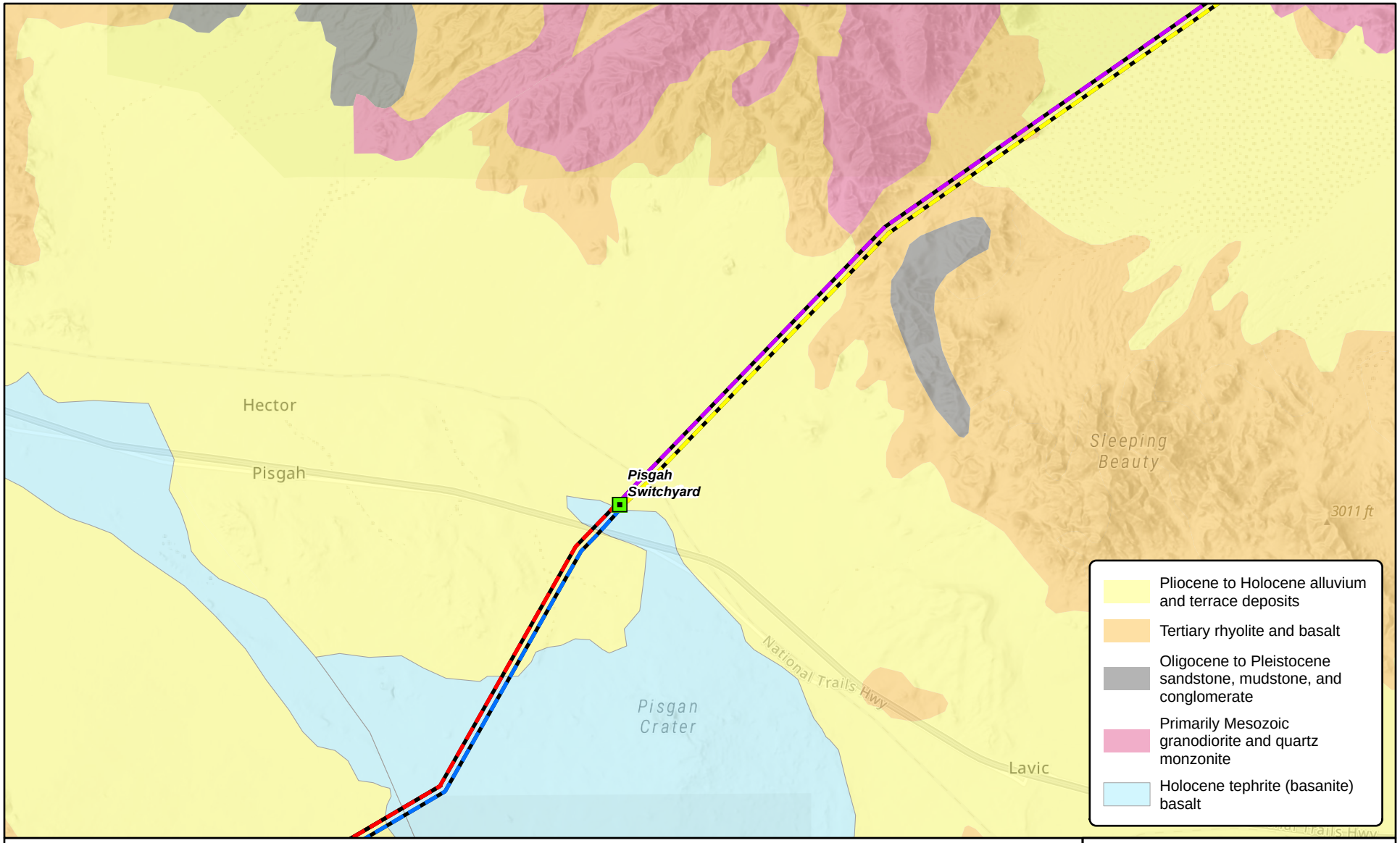
ELDORADO-PISGAH-LUGO 220 kV PROJECT

GENERALIZED GEOLOGIC MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.7-6

Folder: T:_ENV\SCE\SCE_TLLR\ArcGIS_Pro\



Legend

- Substations
- Segment 1
- Segment 2
- Segment 3
- Segment 4
- County Boundary

NOTES:
Sources: USGS 2019a

0 1 2
Miles

ELDORADO-PISGAH-LUGO 220 kV PROJECT

GENERALIZED GEOLOGIC MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.7-6

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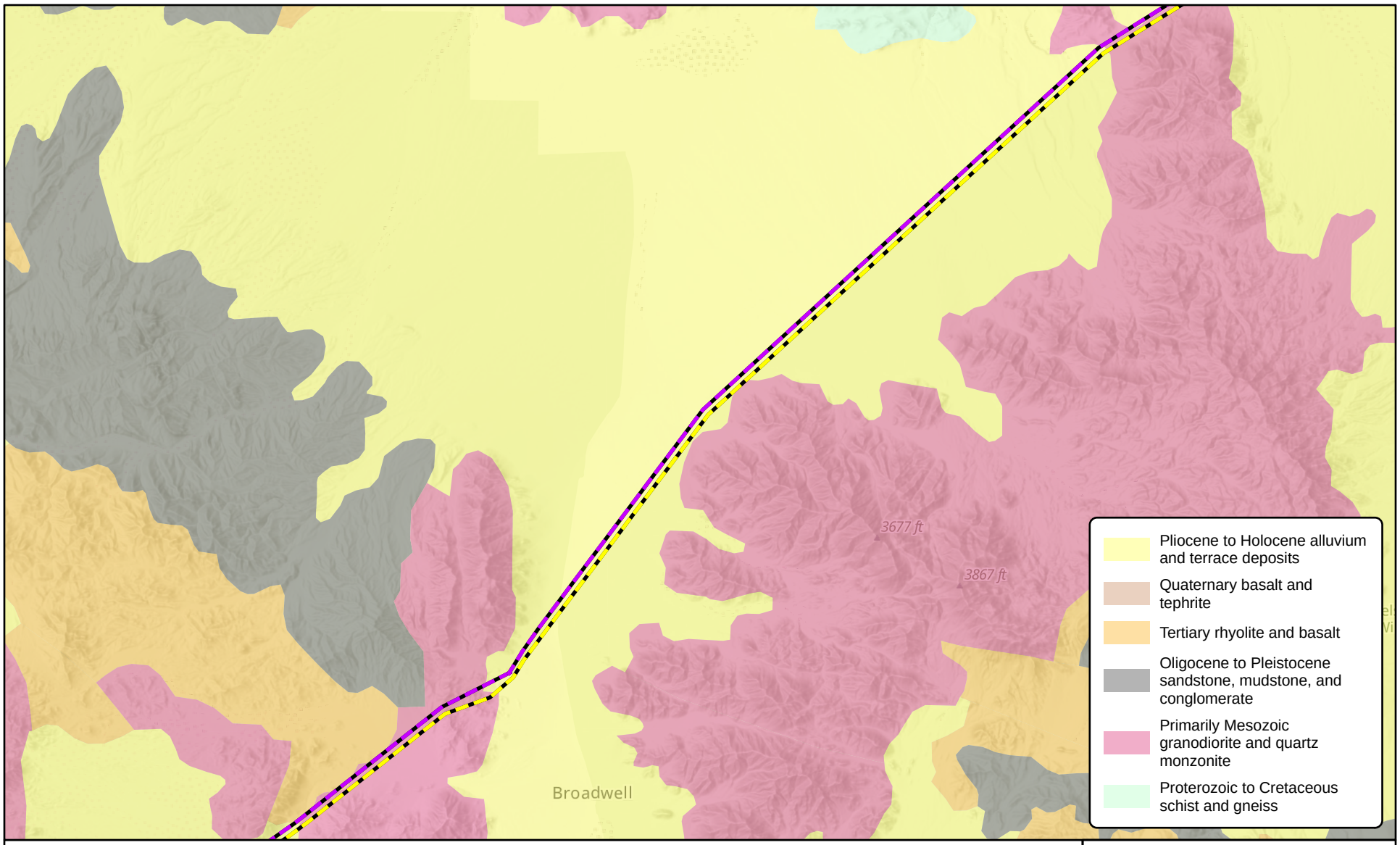

Legend

Substations
Segment 4
Segment 3
County Boundary

NOTES:
Sources: USGS 2019a

0 1 2
Miles

Page 6 of 13

ELDORADO-PISGAH-LUGO 220 kV PROJECT

GENERALIZED GEOLOGIC MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.7-6

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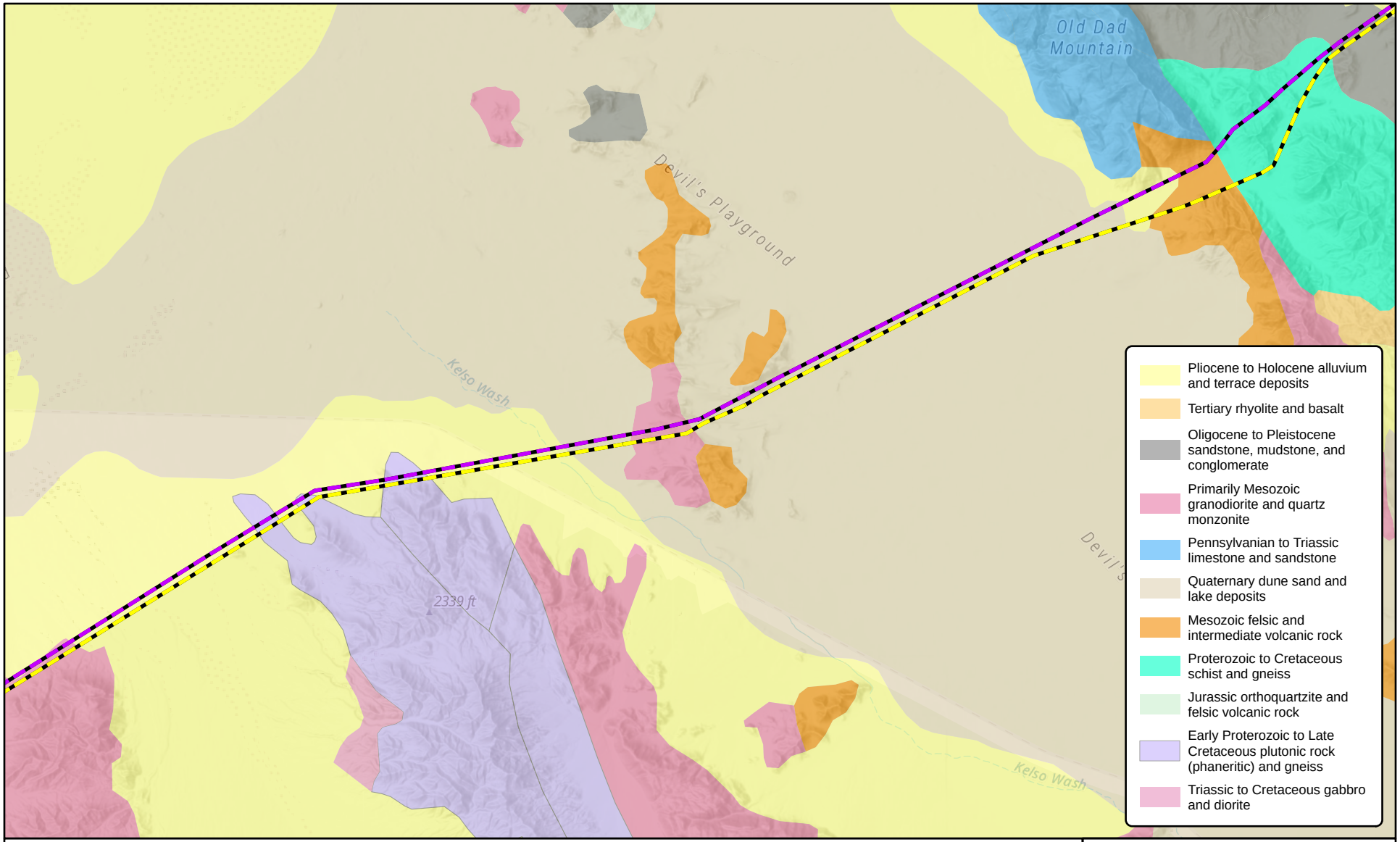


Legend

- Substations
- Segment 4
- Segment 3
- County Boundary

NOTES:
Sources: USGS 2019a

0 1 2
Miles

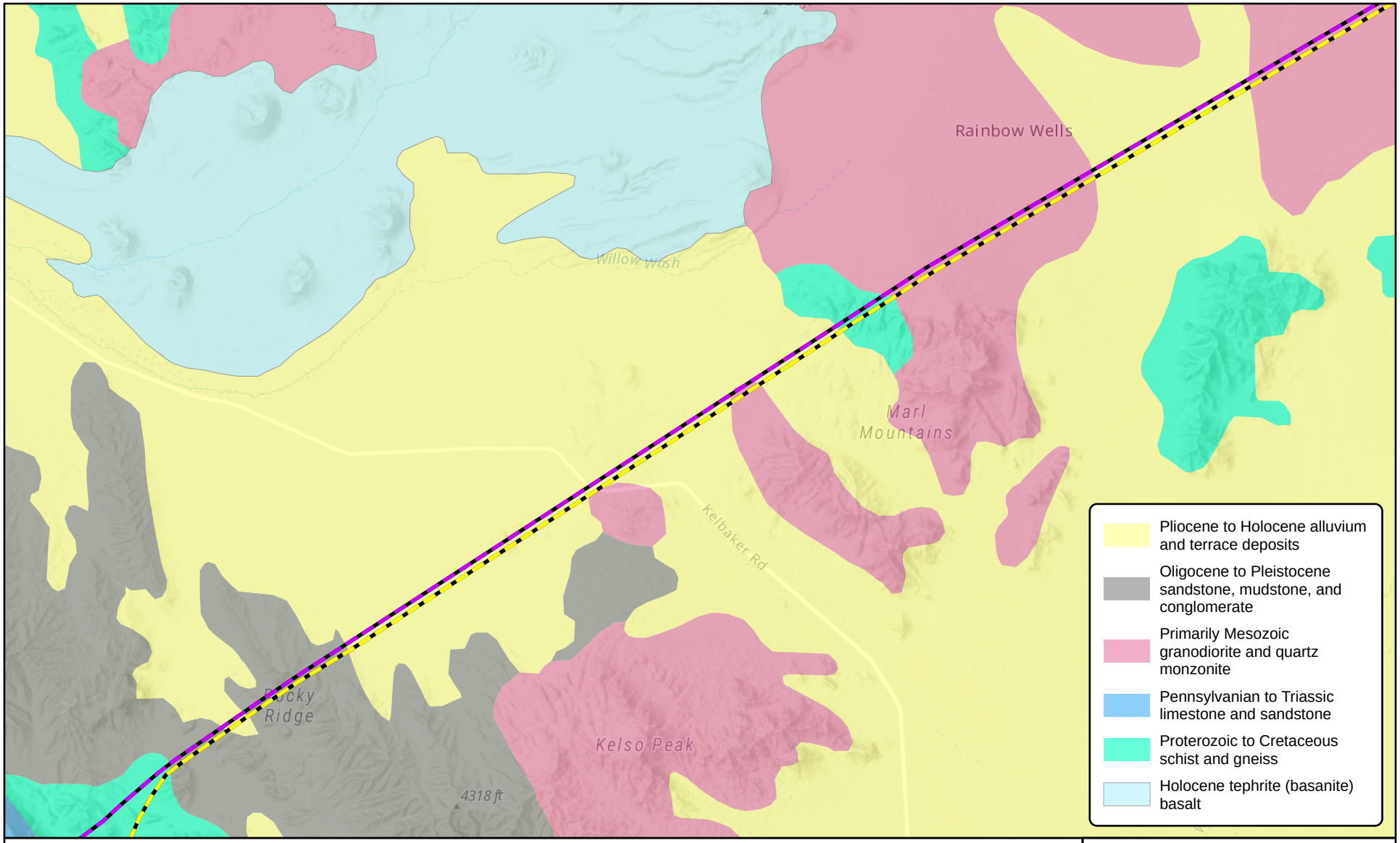
ELDORADO-PISGAH-LUGO 220 kV PROJECT

GENERALIZED GEOLOGIC MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.7-6

Folder: T:_ENV\SCE\SCE_TLR\ArcGIS_Pro\



Legend

Substations
Segment 4
Segment 3
County Boundary

NOTES:
Sources: USGS 2019a

0 1 2
Miles

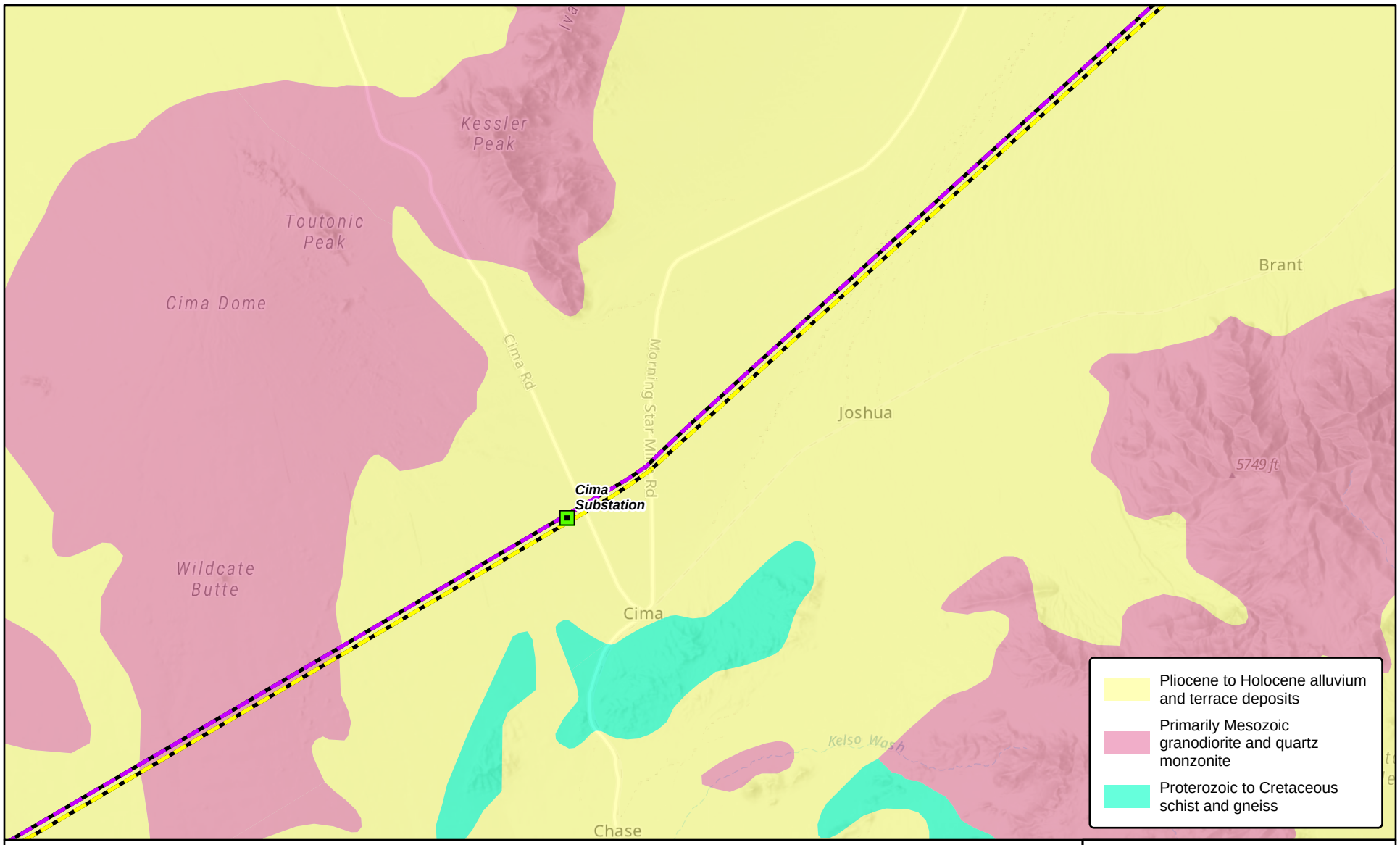
ELDORADO-PISGAH-LUGO 220 kV PROJECT

GENERALIZED GEOLOGIC MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.7-6

Folder: T:_ENV\SCE\SCE_TLLR\ArcGIS_Pro\



Legend

- Substations
- Segment 4
- Segment 3
- County Boundary

NOTES:
Sources: USGS 2019a

0 1 2
Miles

ELDORADO-PISGAH-LUGO 220 kV PROJECT

GENERALIZED GEOLOGIC MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.7-6

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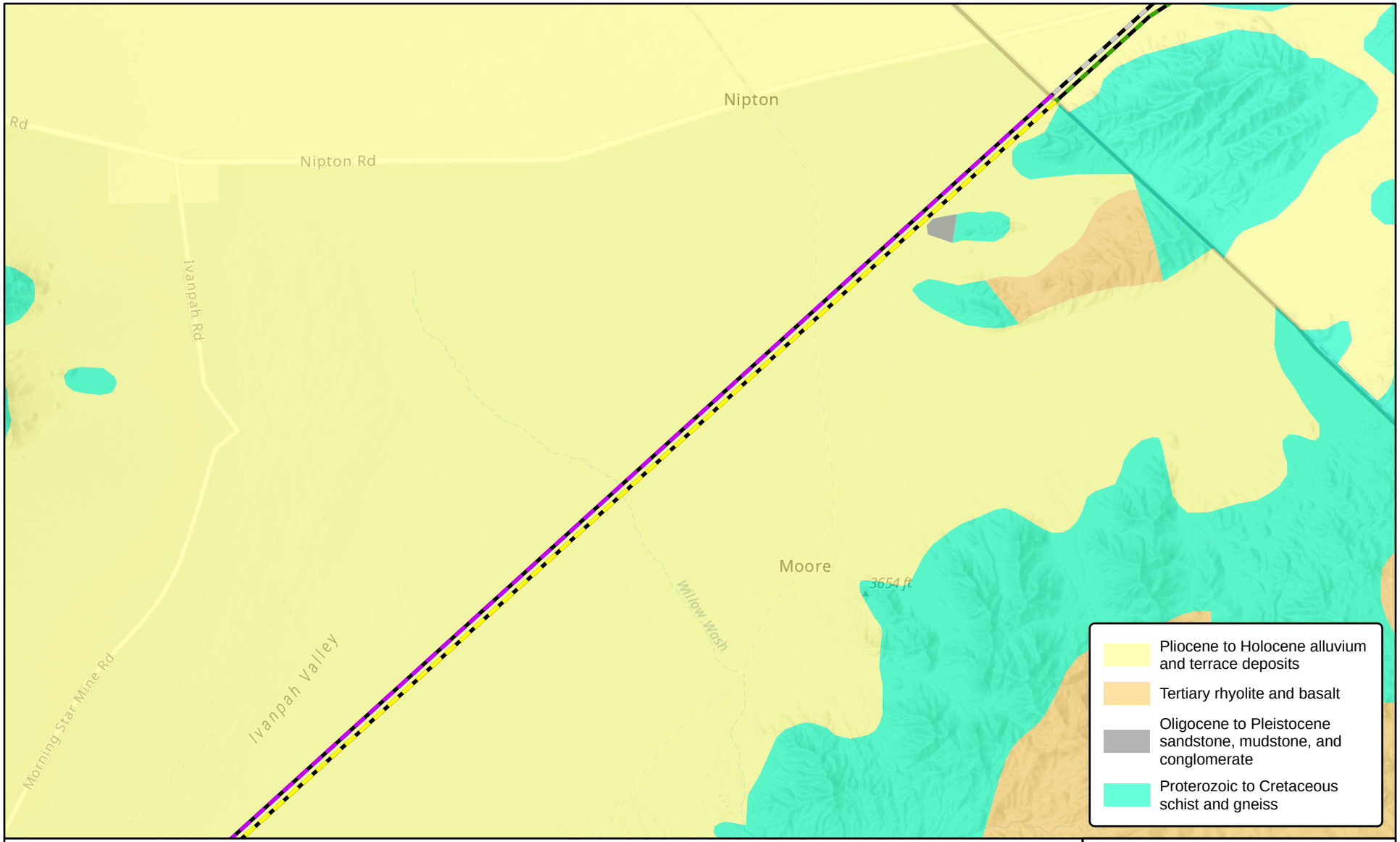

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Legend

- Substations
- Segment 3
- Segment 4
- Segment 5
- Segment 6
- County Boundary

NOTES:
Sources: USGS 2019a

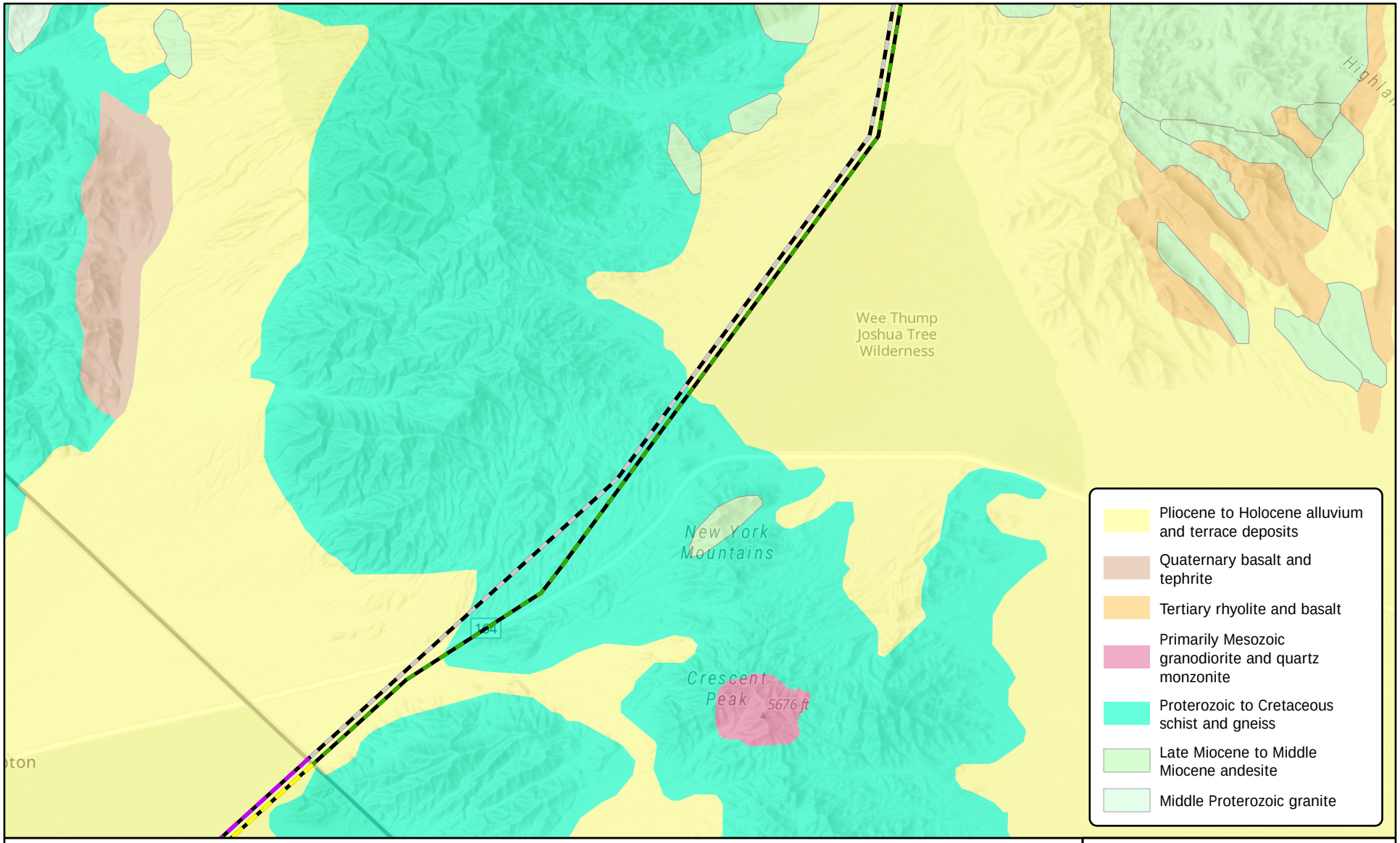
0 1 2
Miles

ELDORADO-PISGAH-LUGO 220 kV PROJECT

GENERALIZED GEOLOGIC MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.7-6



Legend

- Substations
- Segment 3
- Segment 4
- Segment 5
- Segment 6
- County Boundary

NOTES:
Sources: USGS 2019a

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Miles

ELDORADO-PISGAH-LUGO 220 kV PROJECT

GENERALIZED GEOLOGIC MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.7-6

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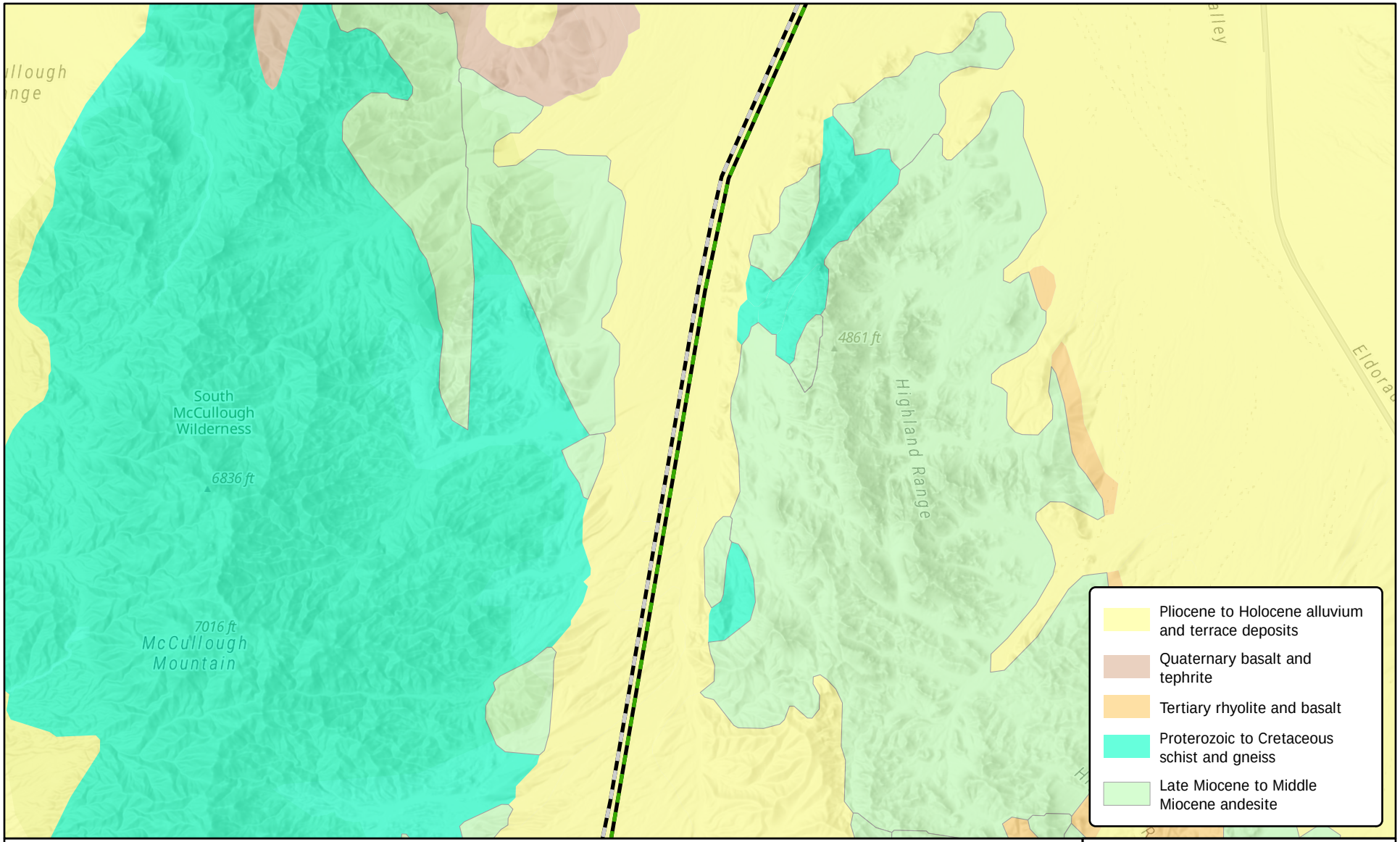

Legend

- Substations
- Segment 5
- Segment 6
- County Boundary

NOTES:
Sources: USGS 2019a

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Miles

Page 12 of 13

ELDORADO-PISGAH-LUGO 220 kV PROJECT

GENERALIZED GEOLOGIC MAP

FIGURE 5.7-6

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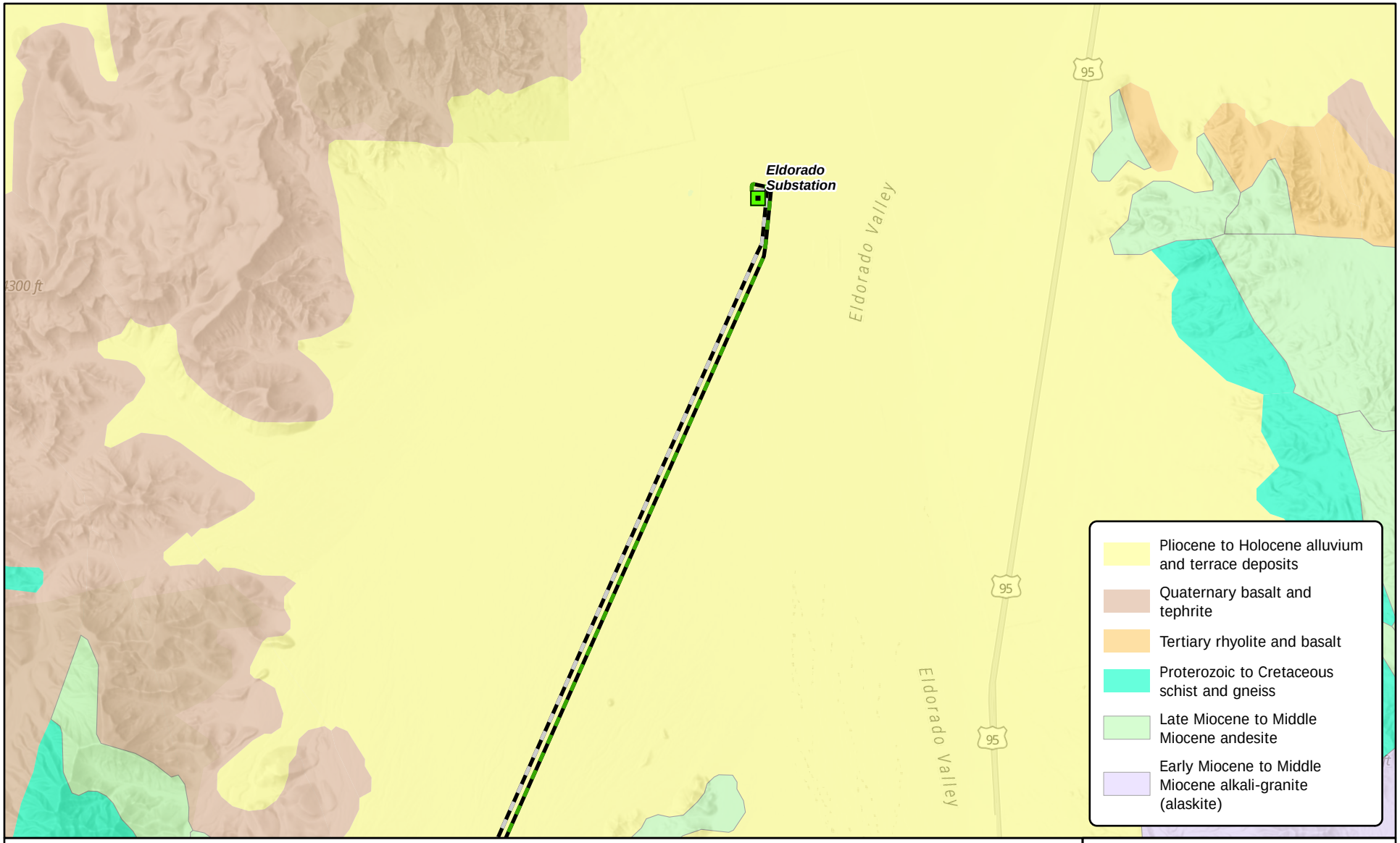

Legend

- Substations
- Segment 5
- Segment 6
- County Boundary

NOTES:
Sources: USGS 2019a

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Miles

ELDORADO-PISGAH-LUGO 220 kV PROJECT

GENERALIZED GEOLOGIC MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.7-6

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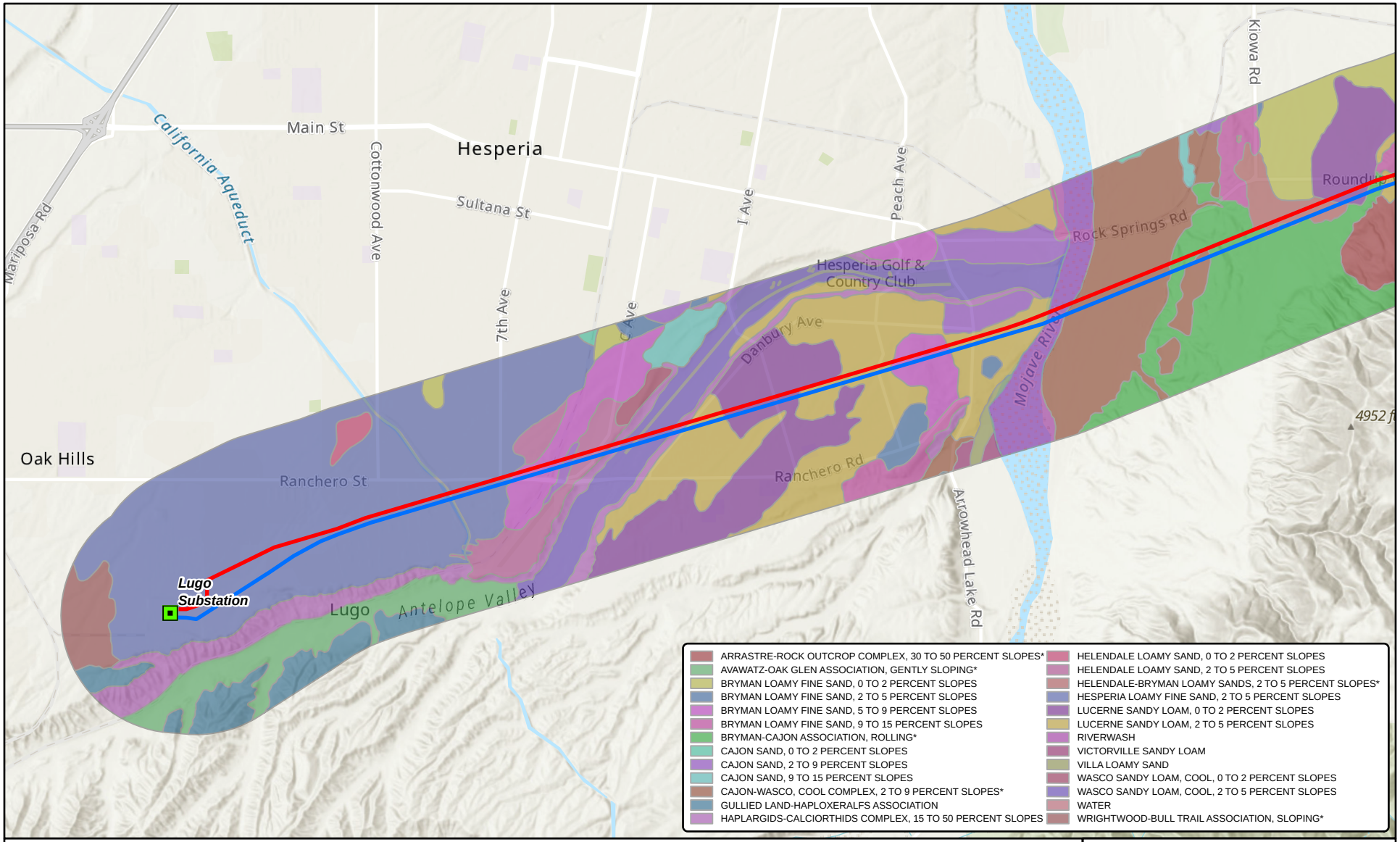

Legend

Substations
Segment 2
Segment 1

NOTES:
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ELDORADO-PISGAH-LUGO 220 kV PROJECT

SOIL UNITS MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.7-7

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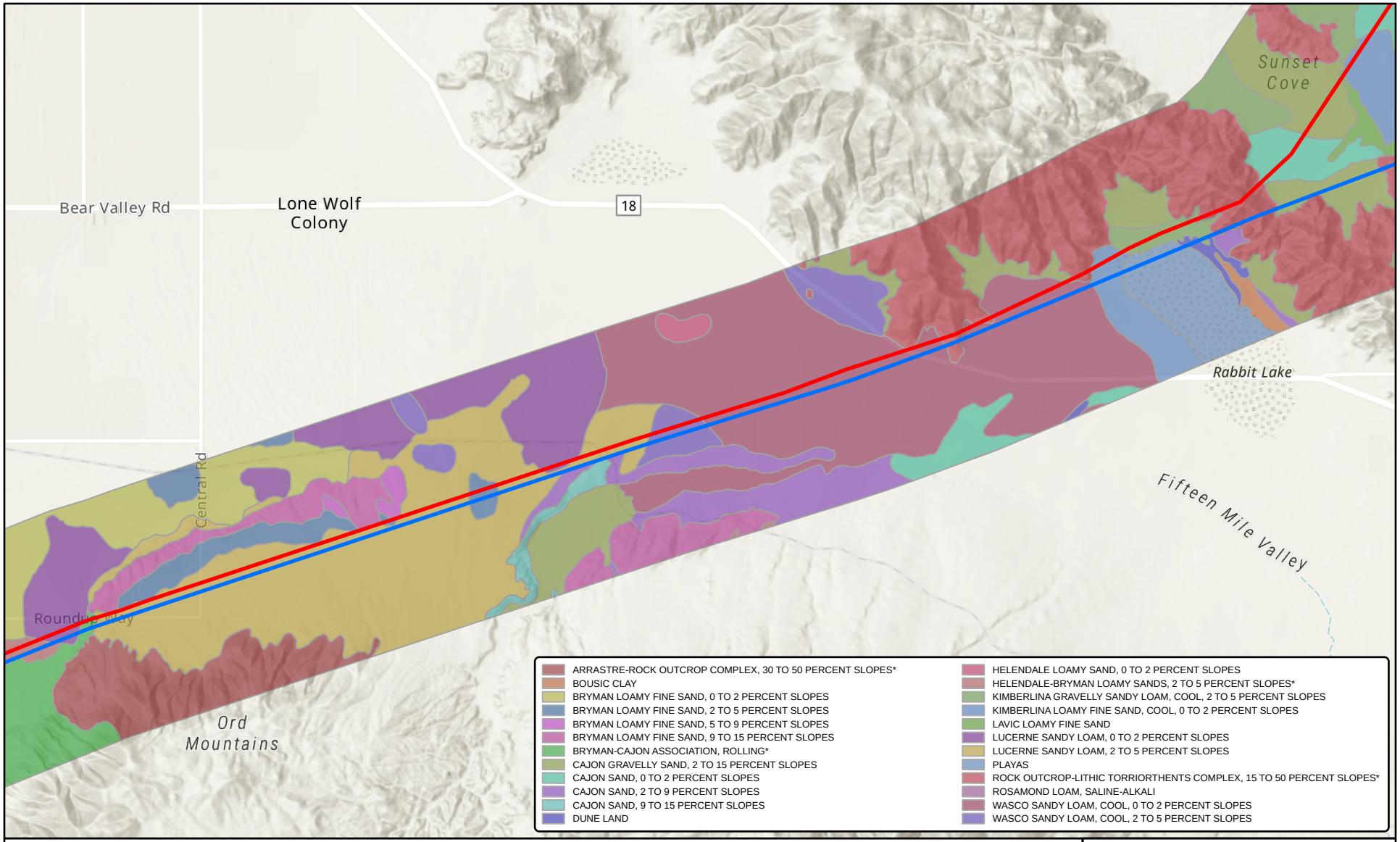

Legend

Substations
Segment 2
Segment 1

NOTES:
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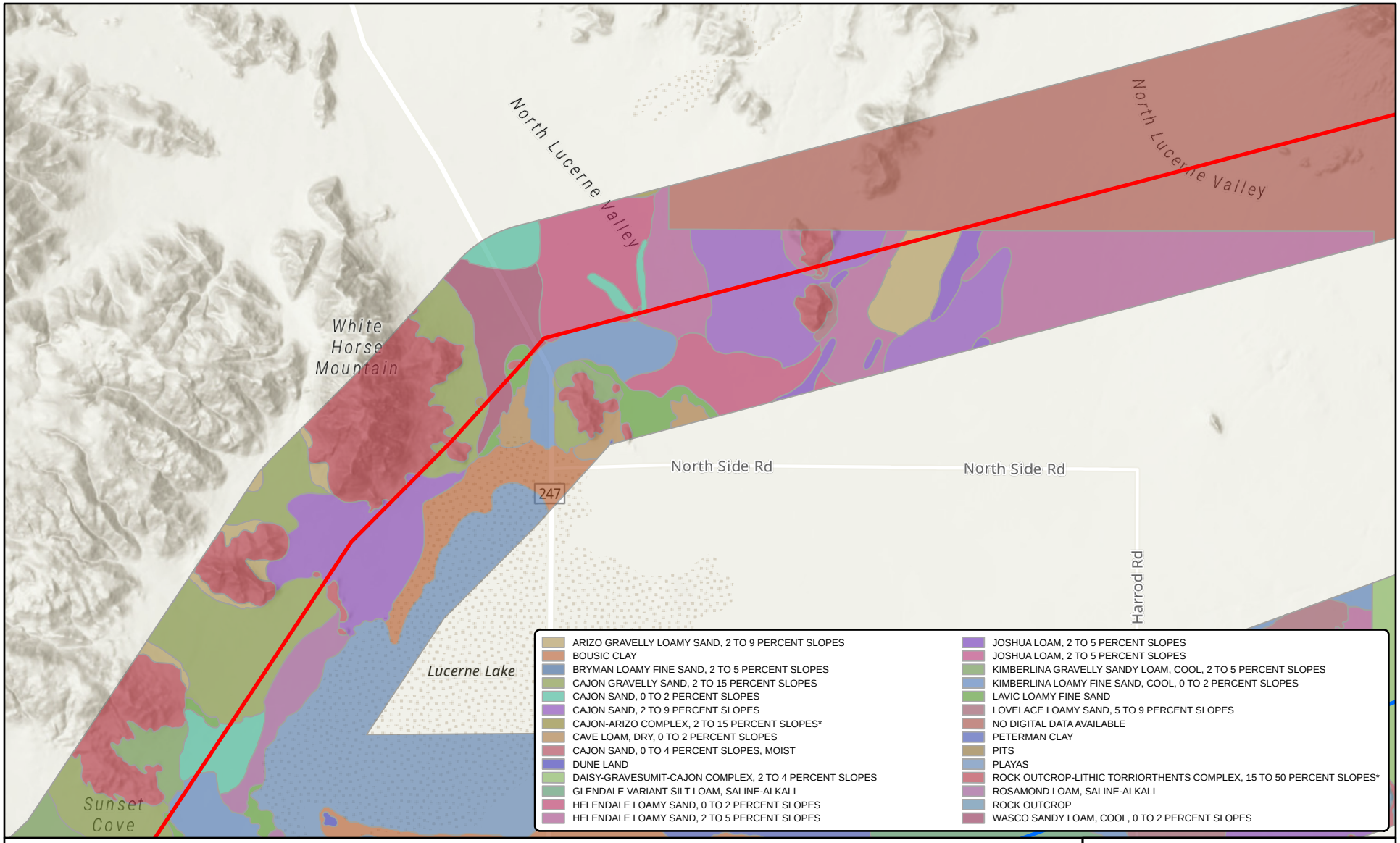
ELDORADO-PISGAH-LUGO 220 kV PROJECT

SOIL UNITS MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.7-7

Folder: T:_ENV\SCE\SCE_TLLR\ArcGIS_Pro\



Legend

Substations

Segment 2

Segment 1

NOTES:
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ELDORADO-PISGAH-LUGO 220 kV PROJECT

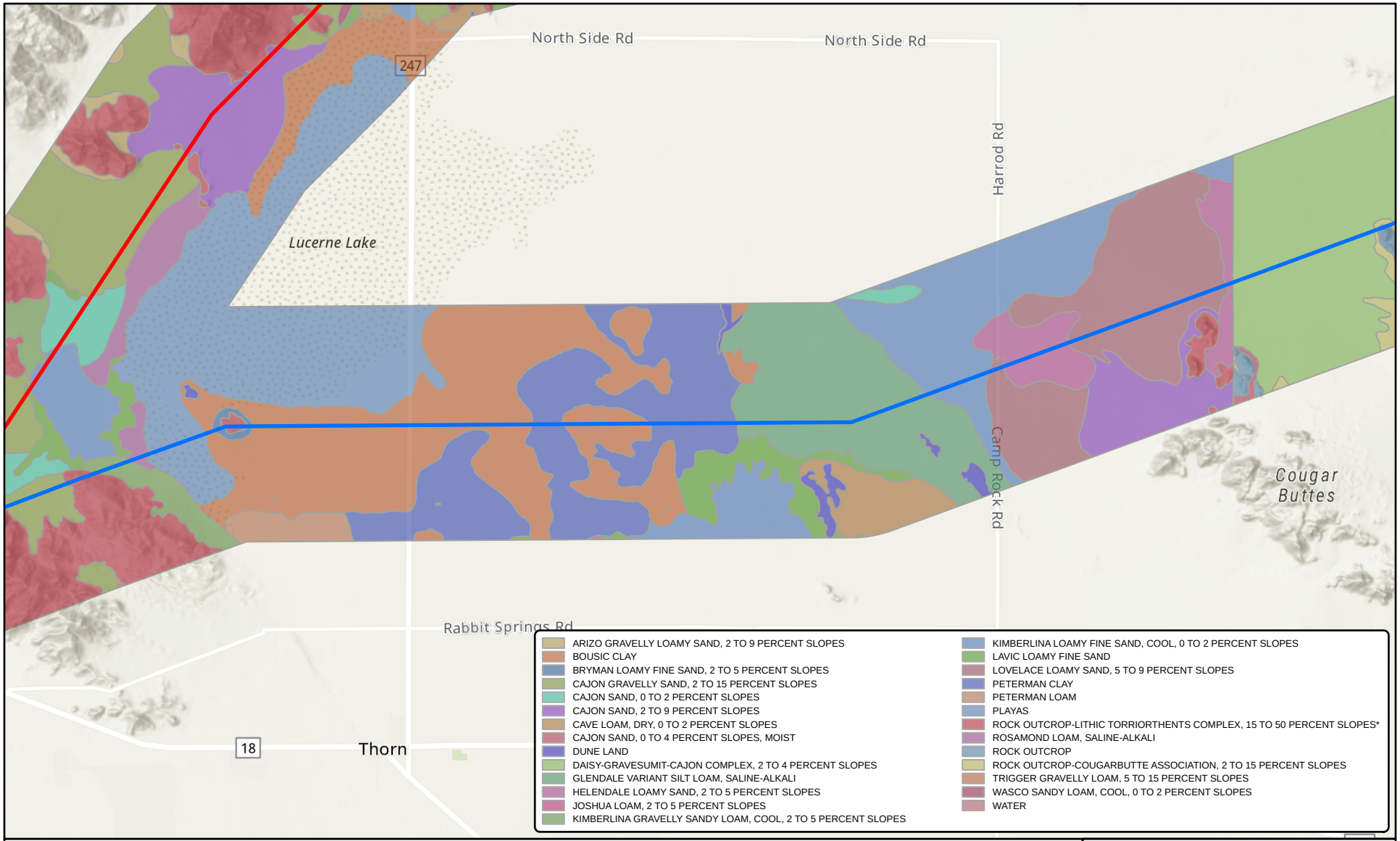
SOIL UNITS MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company

ARCADIS

FIGURE 5.7-7

Folder: T:_ENV\SCE\SCE_TLLR\ArcGIS_Pro\



Legend

Substations
Segment 2
Segment 1

NOTES:
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ELDORADO-PISGAH-LUGO 220 kV PROJECT

SOIL UNITS MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.7-7

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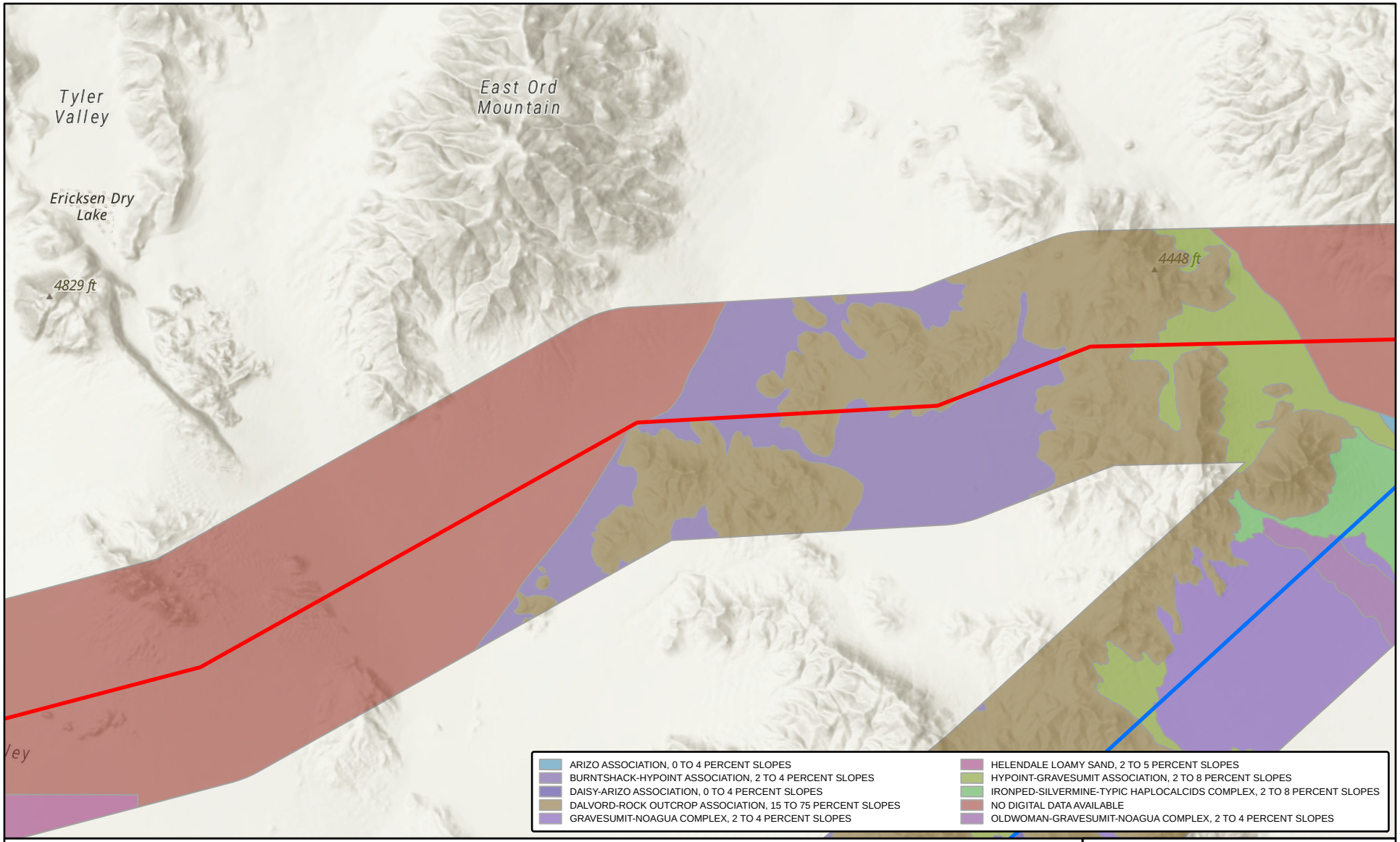

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Substations
Segment 2
Segment 1

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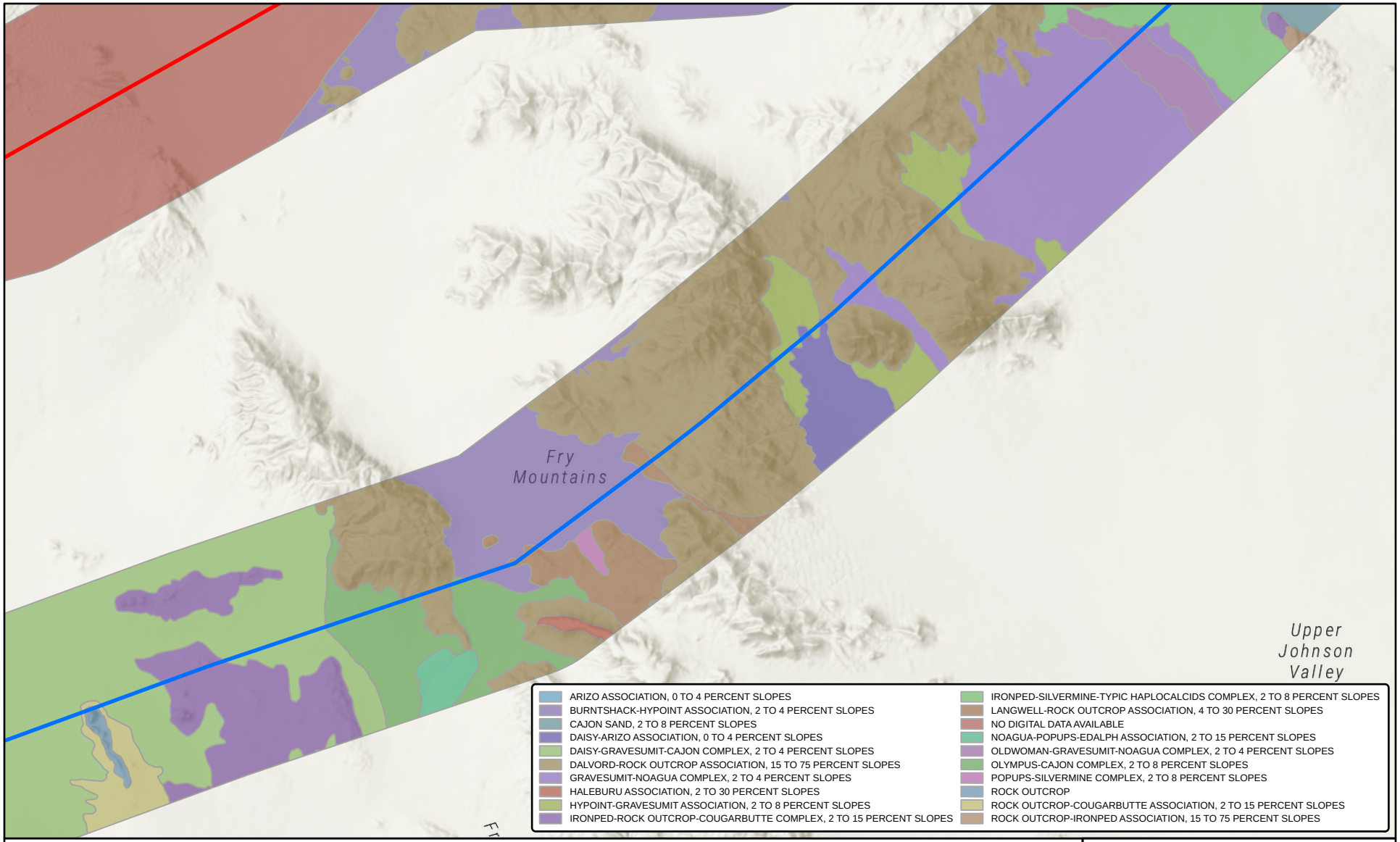
ELDORADO-PISGAH-LUGO 220 kV PROJECT

SOIL UNITS MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.7-7

Folder: T:_ENV\SCE\SCE_TLLR\ArcGIS_Pro\



Legend

Substations
Segment 2
Segment 1

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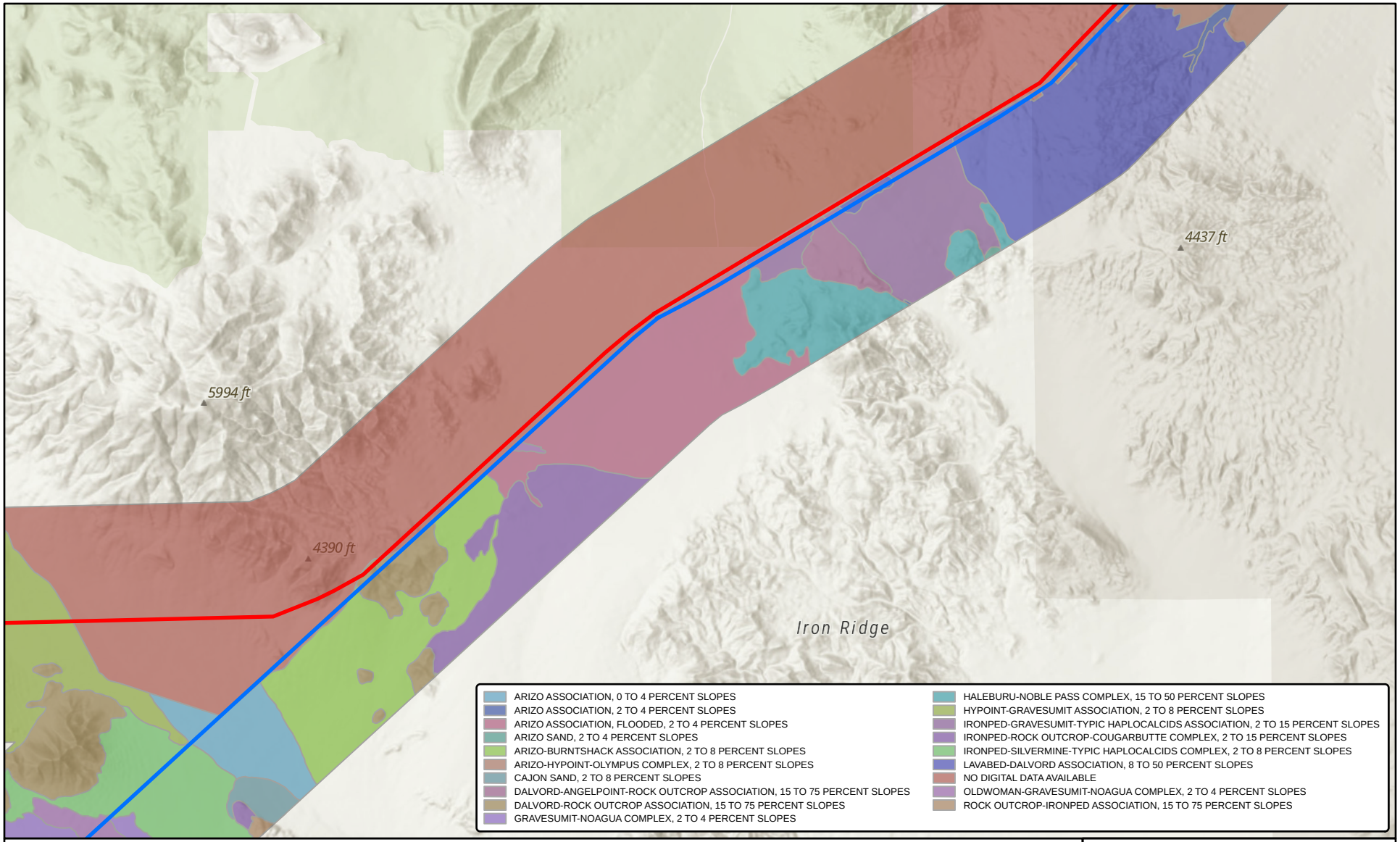
ELDORADO-PISGAH-LUGO 220 kV PROJECT

SOIL UNITS MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.7-7

Folder: T:_ENV\SCE\SCE_TLLR\ArcGIS_Pro\



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Substations

Segment 2

Segment 1

NOTES:
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Miles

ELDORADO-PISGAH-LUGO 220 kV PROJECT

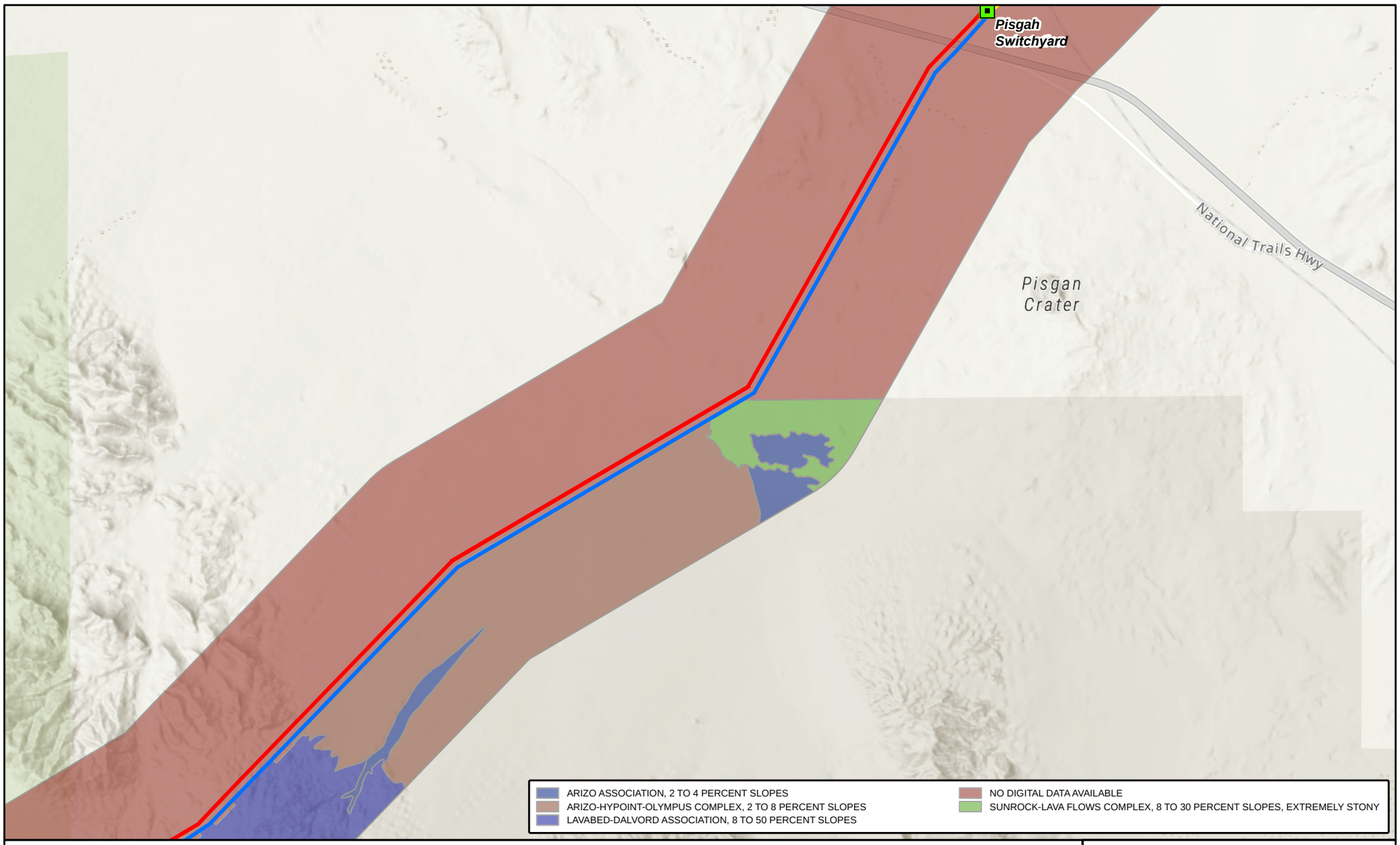
SOIL UNITS MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company

ARCADIS

FIGURE 5.7-7

Folder: T:_ENV\SCE\SCE_TLLR\ArcGIS_Pro\



Legend

- Substations
- Segment 1
- Segment 2
- Segment 3
- Segment 4

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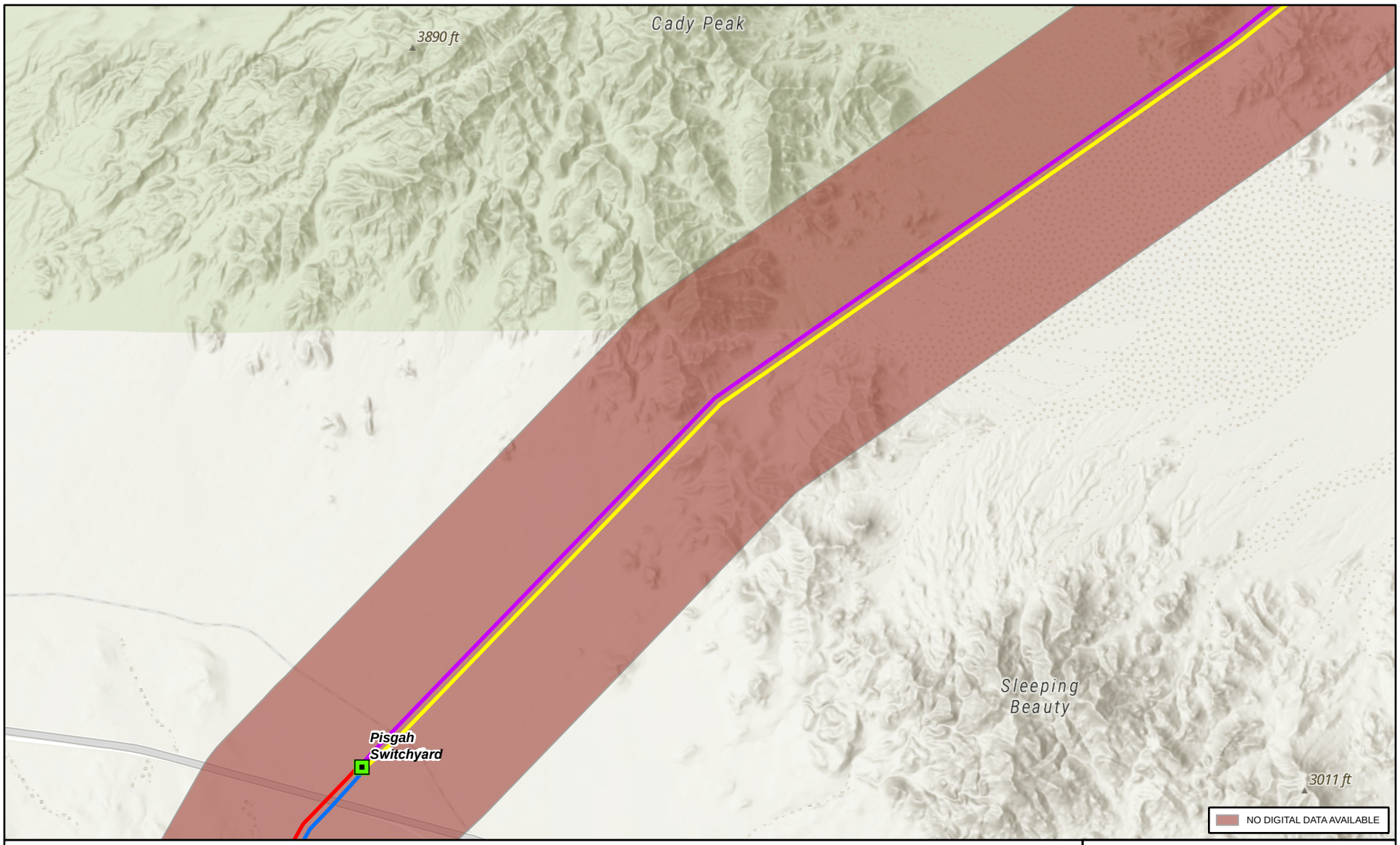
ELDORADO-PISGAH-LUGO 220 kV PROJECT

SOIL UNITS MAP

FIGURE 5.7-7

Folder: T:_ENV\SCE\SCE_TLLR\ArcGIS_Pro\



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- Substations
- Segment 1
- Segment 2
- Segment 3
- Segment 4

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ELDORADO-PISGAH-LUGO 220 kV PROJECT

SOIL UNITS MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.7-7

Legend

Substations
Segment 4
Segment 3

NOTES:
Sources: https://www.arcgis.com/apps/View/index.html?appid=cdc49bd63ea54dd2977f3f2853e07ff

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Miles

ELDORADO-PISGAH-LUGO 220 kV PROJECT

SOIL UNITS MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.7-7

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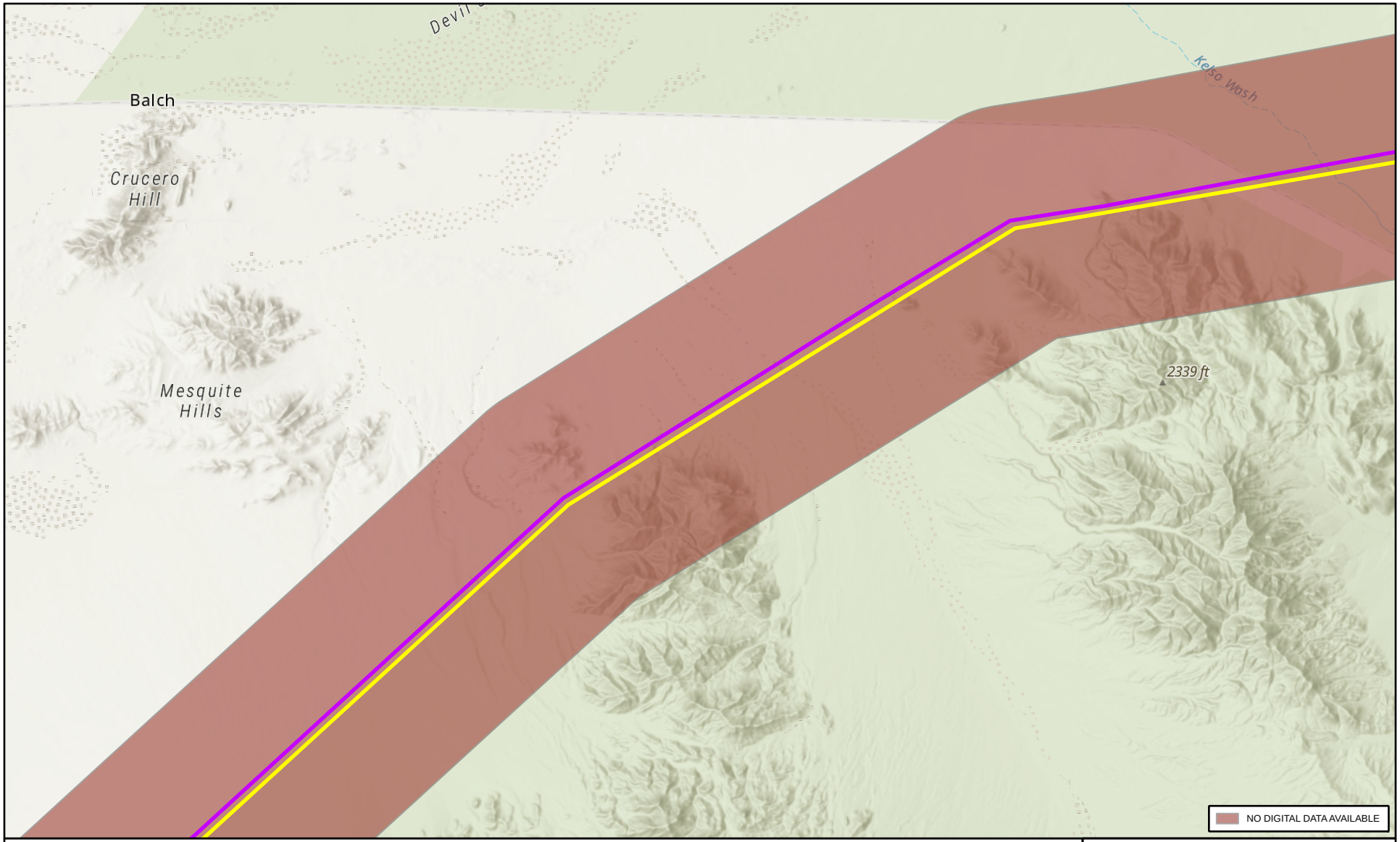

Legend

- Substations
- Segment 4
- Segment 3

NOTES:
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Miles

ELDORADO-PISGAH-LUGO 220 kV PROJECT

SOIL UNITS MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.7-7

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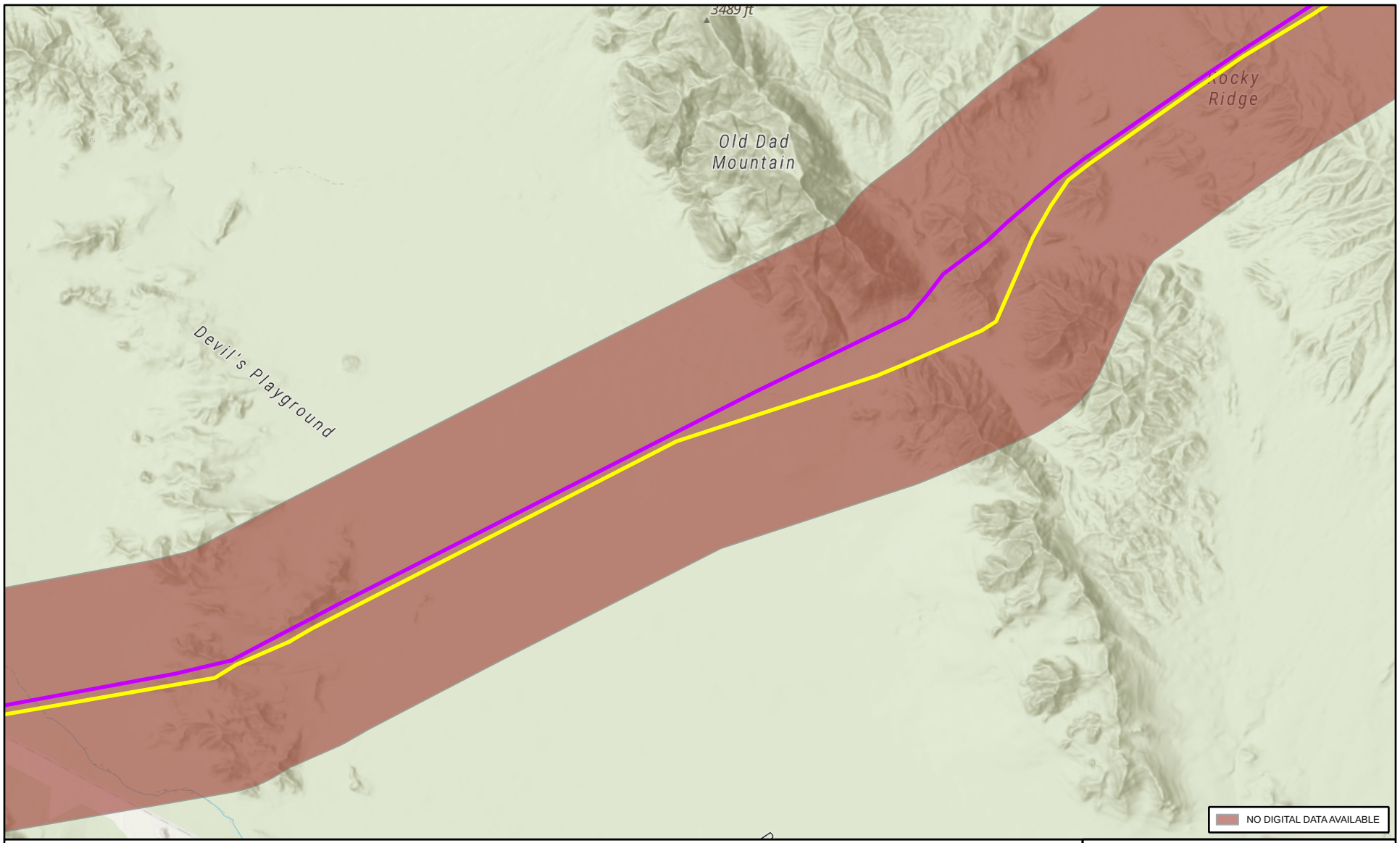

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Substations

Segment 4

Segment 3

NOTES:
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Miles

ELDORADO-PISGAH-LUGO 220 kV PROJECT

SOIL UNITS MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company

ARCADIS

FIGURE 5.7-7

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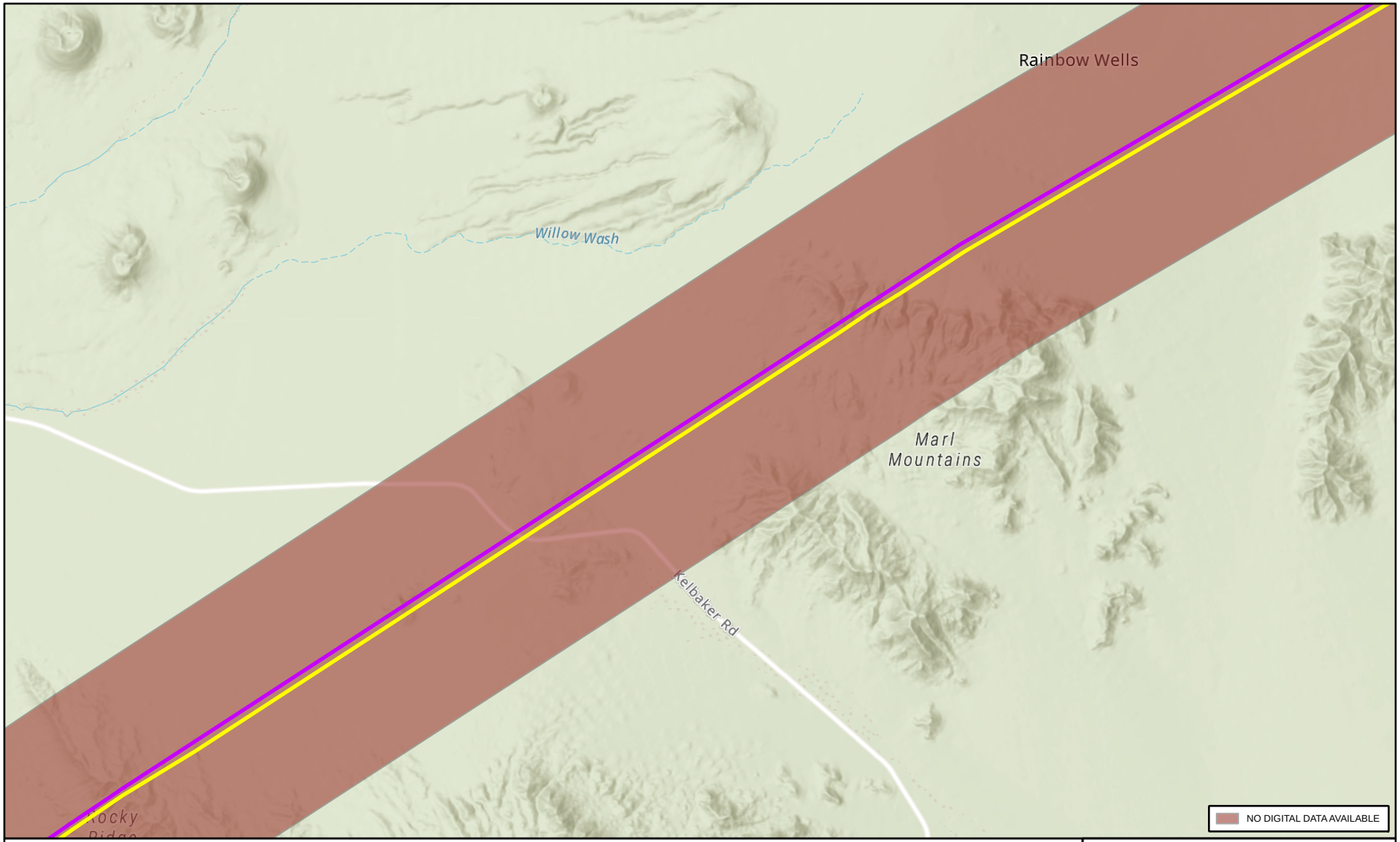

Folder: T:_ENV\SCE\SCE_TLR\ArcGIS_Pro\

Legend

Substations
Segment 4
Segment 3

NOTES:
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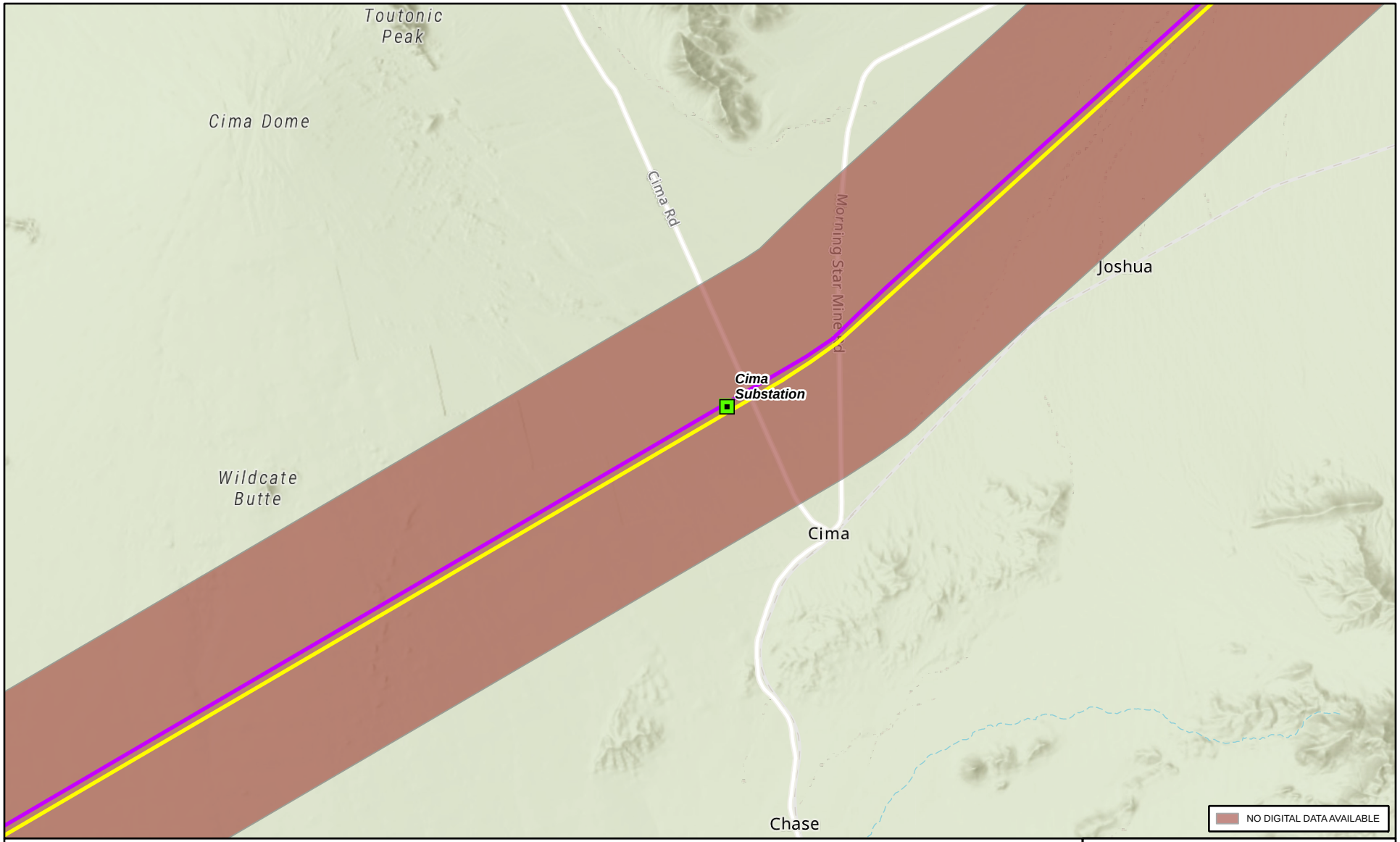
Miles

ELDORADO-PISGAH-LUGO 220 kV PROJECT

SOIL UNITS MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.7-7



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Substations
Segment 4
Segment 3

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ELDORADO-PISGAH-LUGO 220 kV PROJECT

SOIL UNITS MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.7-7

Folder: T:_ENV\SCE\SCE_TLLR\ArcGIS_Pro\

Legend

Substations
Segment 4
Segment 3

NOTES:
Sources: https://www.arcgis.com/apps/View/index.html?appid=cdc49bd63ea54dd2977f3f2853e07ff

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Miles

Page 15 of 20

ELDORADO-PISGAH-LUGO 220 kV PROJECT

SOIL UNITS MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.7-7

Folder: T:_ENV\SCE\SCE_TILR\ArcGIS_Pro\

Legend

- Substations
- Segment 3
- Segment 4
- Segment 5
- Segment 6

NOTES:
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Miles

ELDORADO-PISGAH-LUGO 220 kV PROJECT

SOIL UNITS MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.7-7

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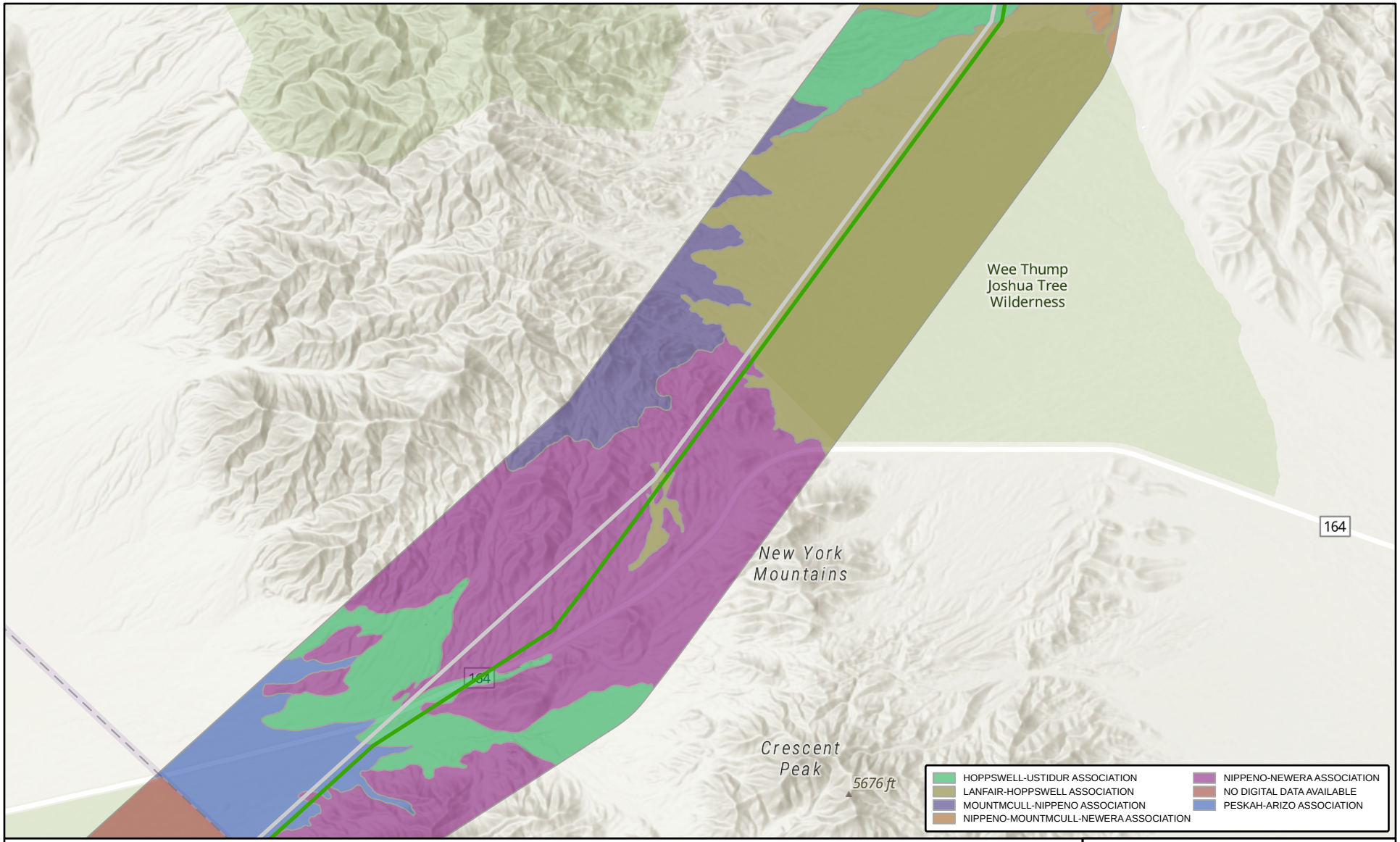

Legend

Substations — Segment 6

Segment 5

NOTES:
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Miles

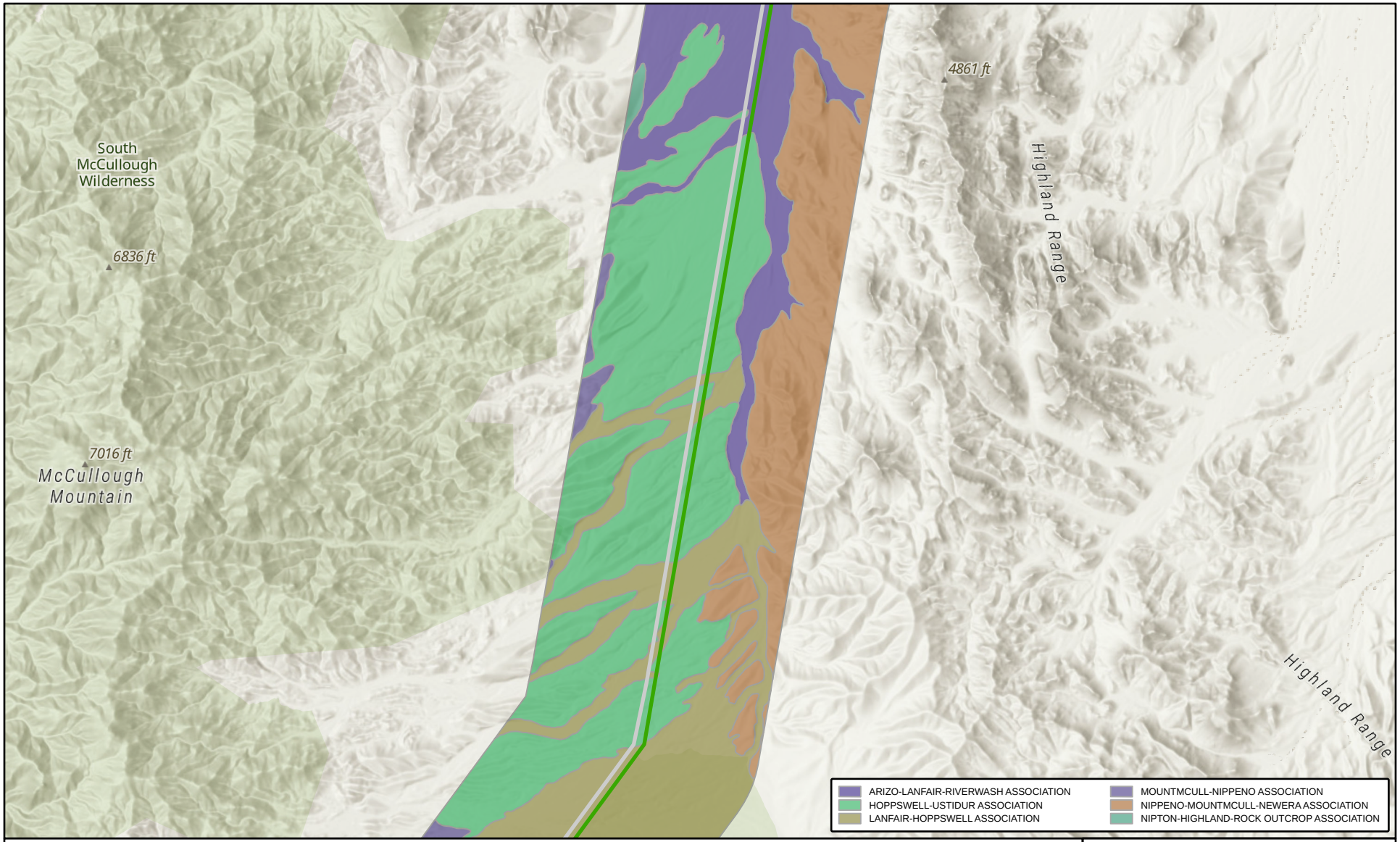
ELDORADO-PISGAH-LUGO 220 kV PROJECT

SOIL UNITS MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company — ARCADIS

FIGURE 5.7-7

Folder: T:_ENV\SCE\SCE_TLLR\ArcGIS_Pro\



Legend

Substations

Segment 6

Segment 5

NOTES:
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Miles

ELDORADO-PISGAH-LUGO 220 kV PROJECT

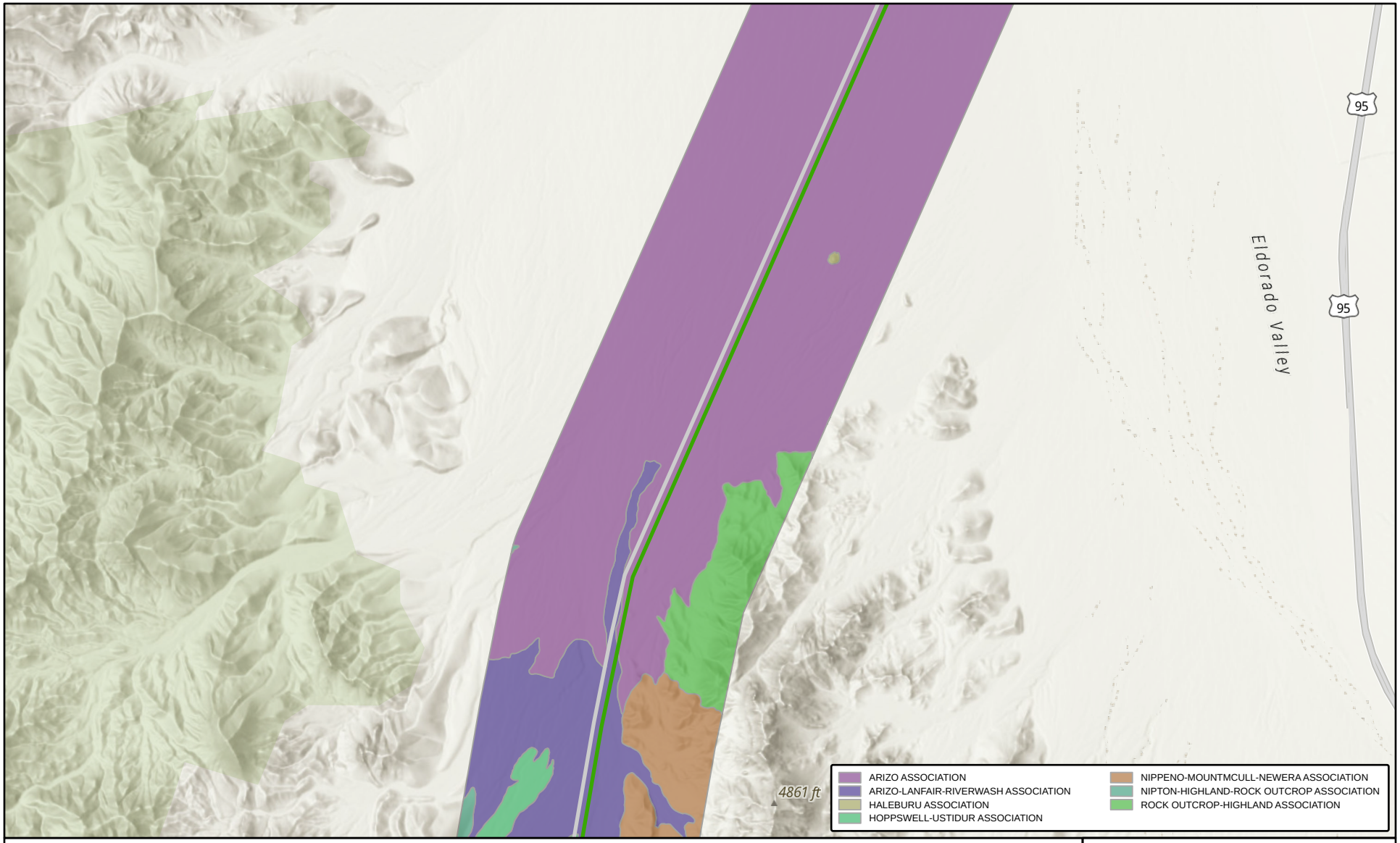
SOIL UNITS MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company

ARCADIS

FIGURE 5.7-7

Folder: T:_ENV\SCE\SCE_TLLR\ArcGIS_Pro\



Legend

Substations

Segment 6

Segment 5

NOTES:
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Miles

ELDORADO-PISGAH-LUGO 220 kV PROJECT

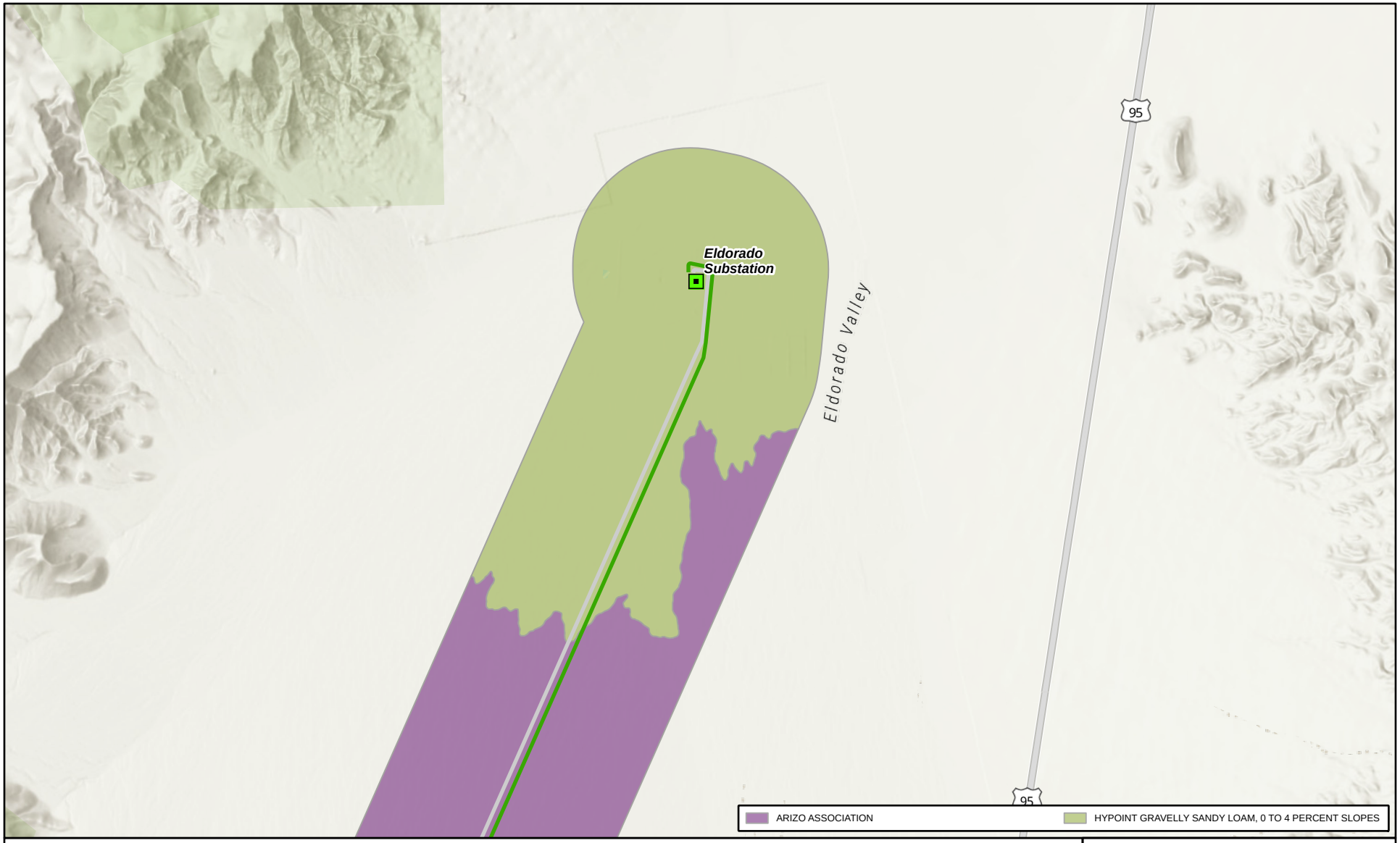
SOIL UNITS MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company

ARCADIS

FIGURE 5.7-7

Folder: T:_ENV\SCE\SCE_TILR\ArcGIS_Pro\



Legend

Substations
Segment 6
Segment 5

NOTES:
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ELDORADO-PISGAH-LUGO 220 kV PROJECT

SOIL UNITS MAP

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.7-7

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5.8 Greenhouse Gas Emissions

This Section of the PEA describes the greenhouse gas (GHG) regulations that are applicable to electrical transmission projects and evaluates the potential impacts from construction and operation of the EPL Project.

5.8.1 Environmental Setting

5.8.1.1 GHG Setting

GHGs refer to gases that trap heat in the atmosphere, causing a greenhouse effect. GHGs include, but are not limited to, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride (SF_6). Atmospheric concentrations of the two most important directly emitted, long-lived GHGs, CO_2 and CH_4, are currently well above the range of atmospheric concentrations that occurred over the last 650,000 years (Pew Center 2008). According to the Intergovernmental Panel on Climate Change (IPCC), increased atmospheric levels of CO_2 are correlated with rising temperatures; concentrations of CO_2 have increased by 31 percent above pre-industrial levels since the year 1750. Climate models show that temperatures will probably increase by 1.4 degrees Celsius (°C) to 5.8°C by the year 2100 (IPCC 2007).

Global warming potential (GWP) estimates how much a given mass of a GHG contributes to climate change. The term enables comparison of the warming effects of different gases. GWP uses a relative scale that compares the warming effect of the gas in question with that of the same mass of CO_2. The CO_2 equivalent (CO_2e) is a measure used to compare the effect of emissions of various GHGs based on their GWP, when projected over a specified time period (generally 100 years). CO_2e is commonly expressed as million metric tons (MMT) of CO_2 equivalents ($MMTCO_2e$). The CO_2e for a gas is obtained by multiplying the mass of the gas (in tons) by its GWP.

5.8.2 Regulatory Setting

Federal, State, and local regulations were reviewed for applicability to the EPL Project.

5.8.2.1 Regulatory Setting

5.8.2.1.1 Federal

5.8.2.1.1.1 Federal Mandatory Reporting of Greenhouse Gases (Section 40 CFR Part 98)

The United States Environmental Protection Agency (EPA) promulgated this rule in 2009 to require mandatory reporting of GHG from large GHG emissions sources in 31 source categories in the United States. In general, the threshold for reporting is 25,000 metric tons or more of CO_2e. Reporting is at the facility level, except that certain suppliers of fossil fuels and industrial GHGs, along with vehicle and engine manufacturers, report at the corporate level. Facilities and suppliers began collecting data on January 1, 2010. The first emissions report was due on March 31, 2011, for emissions during 2010. Manufacturers of vehicles and engines outside of the light-duty sector began reporting CO_2 for model year 2011 and other GHGs in subsequent model years as part of existing EPA certification programs.

Since 2012, EPA regulations also require the reporting of SF_6 emissions from certain electrical facilities. See 40 CFR Part 98, Subpart DD. SCE complies with these requirements. Furthermore, SCE has developed and would implement SF_6 gas management guidelines as described in SCE's document entitled "An Asset Management Approach for EPA/CARB SF_6 Regulations," dated April 2012. This document includes an overview of the tools and methods that SCE utilizes to comply with both EPA's

Voluntary SF_6 Emission Reduction Partnership program and CARB's SF_6 Regulations. Following the guidelines in this document would ensure compliance with these regulations. This guideline document identifies storage methods, disposal method alternatives, and record-keeping requirements. Inventories are documented and annually reported to USEPA and CARB.

5.8.2.1.2 State

5.8.2.1.2.1 California

5.8.2.1.2.1.1 Executive Order B-30-15

Executive Order B-30-15 establishes an interim GHG reduction target of 40 percent below 1990 levels and directs state agencies to take additional actions to prepare for the impacts of climate change. These actions are captured in the state's adaptation strategy, Safeguarding California, which is to be updated every 3 years.

5.8.2.1.2.1.2 Executive Order B-55-18

Executive Order B-30-15 establishes a new statewide goal to "achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter." The goal is in addition to the existing statewide targets of reducing GHG emissions.

5.8.2.1.2.1.3 Global Warming Solutions Act of 2006 (Assembly Bill 32)

The California Global Warming Solutions Act of 2006 (Assembly Bill 32) charges the CARB with the responsibility of monitoring and regulating sources of GHG emissions in order to reduce those emissions. The CARB established a scoping plan in December 2008 for achieving reductions in GHG emissions and has established and implemented regulations for reducing those emissions by the year 2020.

5.8.2.1.2.1.4 California Global Warming Solutions Act of 2006

The California Global Warming Solutions Act of 2006 (Senate Bill 32) expands upon AB 32 to reduce GHG emissions. The Bill requires CARB to reduce GHG emissions to 40% below the 1990 levels by 2030. This bill gives CARB the authority to adopt regulations in order to achieve the maximum technology feasible to be the most cost-efficient way to reduce GHG emissions.

5.8.2.1.2.1.5 Climate Change Scoping Plan

The CARB's Climate Change Scoping Plan was developed in response to Executive Order B-30-15 and SB 32; the Plan establishes a path that will get California to its 2030 target.

5.8.2.1.2.1.6 California Mandatory Greenhouse Gas Reporting Regulation (17 California Code of Regulations §§ 95100 – 95133)

Pursuant to AB 32, CARB adopted the Mandatory Greenhouse Gas Reporting Regulation. The facilities required to annually report their GHG emissions include electricity-generating facilities, electricity retail providers and power marketers, oil refineries, hydrogen plants, cement plants, cogeneration facilities, and industrial sources that emit over 25,000 metric tons per year of CO_2 from stationary source combustion. In particular, retail providers of electricity are required to report fugitive emissions of SF_6 related to transmission and distribution systems, substations, and circuit breakers located in California that the retail provider or marketer is responsible for maintaining in proper working order. SCE complies with these requirements.

5.8.2.1.2.1.7 Senate Bill 100

Senate Bill 100, signed into law in September 2018, amends the California Renewables Portfolio Standard (RPS) Program. The RPS Program requires the CPUC to establish a renewables portfolio standard requiring

all retail sellers of electricity to procure a minimum quantity of electricity products from eligible renewable energy resources so that the total kilowatt-hours of those products sold to their retail end-use customers achieve 25 percent of retail sales by December 31, 2016, 33 percent by December 31, 2020, 44 percent by December 31, 2024, 52 percent by December 31, 2027, and 60 percent by December 31, 2030. SB 100 also establishes a state policy that eligible renewable energy resources and zero-carbon resources supply 100 percent of retail sales by 2045. The RPS Program additionally requires each local publicly owned electric utility to procure a minimum quantity of electricity products from eligible renewable energy resources to achieve the procurement requirements established by the program.

5.8.2.1.2.2 Nevada

5.8.2.1.2.2.1 Nevada Revised Statutes Section 704.865

Nevada Revised Statutes (NRS) Section 704.865 provides that "A person, other than a local government, shall not commence to construct a utility facility in the State without first having obtained a permit therefor from the Commission. The replacement of an existing facility with a like facility, as determined by the Commission, does not constitute construction of a utility facility." The Public Utilities Commission of Nevada is the Lead Agency for compliance with the Nevada Utility Environmental Protection Act.

5.8.2.1.2.2.2 Nevada Revised Statutes Section 445B.380

NRS Section 445B.380 requires that a statewide GHG inventory must be prepared and issued at least every four years beginning in 2008. The GHG inventory report includes the origin, types, and amount of GHGs emitted throughout Nevada, and all supporting analyses and documentation.

5.8.2.1.2.2.3 Nevada Climate Change Advisory Committee Final Report

In 2007, Governor Jim Gibbons signed an EO establishing a committee to recommend climate actions Nevada could pursue to reduce its GHG emissions. In 2008, the final report was issued. The report provides recommendations from the Nevada Climate Change Advisory Committee for addressing GHG emissions in the following six sectors:

- Electricity Consumption
- Residential/Commercial/Industrial
- Transportation
- Waste
- Agriculture
- Other

5.8.2.1.3 Local

The CPUC has sole and exclusive state jurisdiction over the siting and design of the EPL Project. Pursuant to GO 131-D, Section XIV.B, "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters." Consequently, public utilities are directed to consider local regulations and consult with local agencies, but the county and cities' regulations are not applicable as the county and cities do not have jurisdiction over the EPL Project. Accordingly, the following discussion of local land use regulations is provided for informational purposes only.

5.8.2.1.3.1 California

5.8.2.1.3.1.1 Mojave Desert Air Quality Management District, California Environmental Quality Act Guidelines Policy Document

The air districts are primarily responsible for regulating stationary emission sources at industrial and commercial facilities within their respective geographic areas and for preparing the air quality plans that are required under the federal Clean Air Act and the California Clean Air Act. The Mojave Desert Air Quality Management District (MDAQMD) stipulates rules and regulations with which all projects must comply. In addition, the MDAQMD provides methodologies for analyzing a project's impacts under CEQA. The MDAQMD adopted significance thresholds for GHGs in 2016, which are set forth in the latest version of the MDAQMD CEQA and Federal Conformity Guidelines. The guidelines state that any project with GHG emissions exceeding 100,000 tpy of CO2e or 548,000 pounds of CO_2e per day will be considered significant. The document also states the following:

"A significant project must incorporate mitigation sufficient to reduce its impact to a level that is not significant. A project that cannot be mitigated to a level that is not significant must incorporate all feasible mitigation. Note that the emission thresholds are given as a daily value and an annual value, so that multi-phased project (such as project with a construction phase and a separate operational phase) with phases shorter than one year can be compared to the daily value."

5.8.2.1.3.1.2 San Bernardino Associated Governments, San Bernardino County Regional Greenhouse Gas Reduction Plan

San Bernardino Associated Governments (SANBAG) has adopted a Regional GHG Reduction Plan, which is intended to present goals identified by participating cities for reducing GHG emissions to levels they have individually selected. The plan includes an inventory of current GHG emissions, forecasts of 2020 emissions, initiatives to reduce emissions, and baseline information for the development of city climate action plans.

5.8.2.1.3.1.3 County of San Bernardino, County of San Bernardino Countywide Plan

The Natural Resources Element of the County of San Bernardino Countywide Plan contains the following policy:

- Policy NR-1.7 Greenhouse gas reduction targets
  We strive to meet the 2040 and 2050 greenhouse gas emission reduction targets in accordance with state law.

The county adopted a final GHG Reduction Plan in September 2011, which included Statewide, San Bernardino County, and local community measures. These measures target all sectors, but are primarily targeted at the building energy and transportation sectors.

5.8.2.1.3.1.4 City of Hesperia, City of Hesperia General Plan 2010

The Conservation Element of the City of Hesperia General Plan 2010 contains the following goal that is relevant to the Proposed Project:

- Goal CN-7: Develop, promote and implement policies to reduce and limit GHG Emissions.

This goal requires the city, in conjunction with regional councils of government, to prepare and implement a climate action plan. The goal also promotes the utilization of alternative energy resources (e.g., solar and wind), environmentally sensitive building materials, and the conservation of energy though building design and site layouts.

5.8.2.1.3.2 Nevada

5.8.2.1.3.2.1 Southern Nevada Regional Planning Coalition, Regional Emissions Inventory

The Southern Nevada Regional Planning Coalition (SNRPC) brought together all public jurisdictions, which included the CARB, California Climate Action Registry, International Council of Local Environmental Initiatives-Local Governments for Sustainability USA, and the Climate Registry to develop a consistent protocol for reporting GHG emissions. In partnership with these public jurisdictions, the SNRPC developed the first GHG emission inventory for the Las Vegas Valley, including unincorporated areas of Clark County and the cities of Las Vegas, North Las Vegas, Henderson, and Boulder City. The first inventory provided a comparison of emissions by sector from 2005 to 2009. The Regional GHG Emissions Inventory was last updated in 2014.

5.8.2.1.3.2.2 Clark County, Clark County Department of Air Quality

The Department of Air Quality (DAQ) is the air pollution control agency for all of Clark County, Nevada. Certain facilities in Clark County may be subject to both federal and State GHG regulations. The Nevada Division of Environmental Protection (NDEP) and the U.S. EPA each currently require the submission of GHG emission inventories for facilities that exceed applicable threshold emission levels. The EPA has also published a proposed rule that may require certain industrial facilities to acquire federal permits.

5.8.2.1.3.2.3 Clark County Comprehensive Plan

The Conservation Element of the Clark County Comprehensive Plan does not contain any specific goals or policies that are relevant to the Proposed Project.

5.8.2.1.3.2.4 City of Boulder City, City of Boulder City Master Plan

The City of Boulder City Master Plan does not contain any specific goals or policies that are relevant to the EPL Project.

5.8.3 Impact Questions

5.8.3.1 Impact Questions

The significance criteria for assessing the impacts from GHG emissions are derived from the CEQA Environmental Checklist. According to the CEQA Checklist, a project causes a potentially significant impact if it would:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions

5.8.3.2 Additional CEQA Impact Questions

There are no CPUC-identified additional CEQA impact questions.

5.8.4 Impact Analysis

5.8.4.1 Impact Analysis

5.8.4.1.1 Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

5.8.4.1.1.1 Construction and Operation

Less than Significant Impact. GHG emissions would be generated from operation of heavy equipment, support vehicles and helicopters. The most common GHGs associated with fuel combustion are CO_2, CH_4, and N_2O. Annual GHG emissions were estimated for construction activities using the CalEEMod model for both on-road and off-road sources. Helicopter emissions were estimated based on the Swiss Federal Office of Civil Aviation (FOCA) Guidance on the Determination of Helicopter Emissions (FOCA 2015).

Construction activities would result in emissions of GHG over the construction period. Construction activities would result in exhaust emissions from vehicular traffic, as well as from construction equipment and machinery. Over the construction period, approximately 1,743 $MTCO_2e$ would be emitted. GHG construction emissions from future activities amortized over 30 years is approximately 58 $MTCO_2e$. As explained in Section 5.3, operational emissions would not differ in scope or scale from activities currently conducted. Thus, the estimated annual emission of GHGs from the operation of the infrastructure replaced under the EPL Project is unchanged from the current O&M-related emissions. Combined, the 58 $MTCO_2e$ emissions associated with construction and operations would be well below the 100,000 $MTCO_2e$ threshold of significance established by the MDAQMD. Therefore, the EPL Project would not generate, either directly or indirectly, GHG emissions that would have a significant impact on the environment, and impacts would be less than significant.

5.8.4.1.2 Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

5.8.4.1.2.1 Construction

No Impact. Construction of the EPL Project would be consistent with applicable policies, plans, and regulations for reducing GHG emissions. The EPL Project would incorporate best management practices and other standard SCE practices, such as reducing the idle time of construction vehicles, that are consistent with the requirements and intentions of the federal and state plans, polices, and regulations. Construction activities would not be expected to consume a substantial amount of energy that would result in a conflict with policies that serve to reduce GHG emissions through a reduction in energy consumption. As presented above, GHG construction emissions from activities amortized over 30 years would be approximately 58 $MTCO_2e$. GHG emissions would fall well below the MDAQMD numerical thresholds of significance. Therefore, the EPL Project would not conflict with any applicable plan, policy, or regulation, and no impact would occur under this criterion.

5.8.4.1.2.2 Operation

No Impact. As presented in Chapter 3, SCE is currently performing O&M activities, including inspections, along the EPL Project alignment. No material changes in O&M activities are anticipated with implementation of the EPL Project, and therefore no impacts would be realized under this criterion during operations and maintenance.

5.8.4.2 GHG Emissions

A quantitative assessment of GHG emissions is presented above in Section 5.8.4.1.1.1. Model results and files accompany those developed for the air quality analysis and as addressed in Section 5.3. A discussion of programs in place to reduced GHG emissions on a system-wide level is unnecessary because the EPL Project does not include the installation of new GHG-emitting infrastructure, and because no significant impacts have been identified.

5.8.5 CPUC Draft Environmental Measures

SCE will, at the direction of the CPUC, implement the following CPUC Draft Environmental Measure during construction of the EPL Project:

Greenhouse Gas Emissions Reduction During Construction

The following measures shall be implemented to minimize GHG emissions from all construction sites:

- If suitable park-and-ride facilities are available in the project vicinity, construction workers shall be encouraged to carpool to the job site.
- The Applicant shall develop a carpool program to the job site.
- On road and off-road vehicle tire pressures shall be maintained to manufacturer specifications. Tires shall be checked and re-inflated at regular intervals.
- Demolition debris shall be recycled for reuse to the extent feasible.
- The contractor shall use line power instead of diesel generators at all construction sites where line power is available.
- The contractor shall maintain construction equipment per manufacturing specifications.

5.9 Hazards, Hazardous Materials, and Public Safety

This Section of the PEA describes the hazards and hazardous materials along the EPL Project alignment, as well as the potential impacts associated with construction and operation of the EPL Project.

5.9.1 Environmental Setting

As described in Section 5.11.1, the existing land use along the EPL Project alignment is primarily open space, with scattered rural residences and agriculture. The western end of the EPL Project alignment is located within the City of Hesperia; land uses adjacent to the alignment in the City are predominately residential. These land uses have remained relatively unchanged over time.

5.9.1.1 Hazardous Materials Report

Data that is presented through the CalEPA Regulated Site Portal was queried utilizing GIS software; the project area utilized during the query is defined as the material yards and construction work areas described in Sections 3.5.2 and 3.5.3, and as presented in Appendix A. No facilities catalogued by the Cal EPA Regulated Site Portal are co-located with the EPL Project area described above. The Lugo Substation is listed as a chemical storage facility; however, although Lugo Substation is the western terminus of Segments 1 and 2, no work under the EPL Project would occur at the Lugo Substation.

5.9.1.2 Airport Land Use Plan

The western portions of Segment 1 and 2 are located within two miles of Hesperia Airport and within the area addressed in the Comprehensive Land Use Plan: Hesperia Airport (Vidal 1991).

5.9.1.3 Fire Hazard, California

Within California, fire hazard severity zones are designated by the California Department of Forestry and Fire Protection (CAL FIRE). Fire hazard severity zones are administered by the federal, state, or local government that is financially responsible for preventing and suppressing wildfires in a given area, and are categorized into the following three groups:

- Federal Responsibility Areas: The federal government is financially responsible for wildfire suppression. Those portions of the EPL Project alignment in Segments 1, 2, 3, and 4 located on BLM and NPS lands are identified as Federal Responsibility Areas.
- State Responsibility Areas: The state is financially responsible for wildfire suppression. Portions of Segments 1 and 2 are identified as State Responsibility Areas.
- Local Responsibility Areas: Cities or counties are financially responsible for wildfire suppression. Portions of all Segments are identified as Local Responsibility Areas.

On December 21, 2017, the CPUC issued Decision (D.) 17-12-024 adopting regulations to enhance fire-safety in the HFTD, effectively completing the second track of R.15-05-006.[21] On January 19, 2018 the CPUC adopted, via Safety and Enforcement Division's (SED) disposition of a Tier 1 Advice Letter, the final CPUC Fire-Threat Map. The adopted CPUC Fire-Threat Map, together with the map of Tier 1 High Hazard Zones (HHZs) on the USFS-CAL FIRE joint map of tree mortality HHZs, comprise the HFTD Map where stricter fire-safety regulations apply.

[21] R.15-05-006, Order Instituting Rulemaking to Develop and Adopt Fire-Threat Maps and Fire-Safety Regulations.

CAL FIRE is required by law to map areas of significant fire hazards based on fuels, terrain, weather, and other relevant factors. These zones are referred to as Fire Hazard Severity Zones (FHSZs). The majority of the EPL Project alignment is located in areas within a CAL FIRE moderate fire hazard severity zone;; no portion of the EPL Project alignment is located in a very high fire hazard severity zone. Portions of Segments 1 and 2 are located in areas designated as moderate and high fire hazard severity zones. Tabular information on the miles of EPL Project alignment located within these zones is presented in Table 5.9-1 below, and shown graphically on Figure 5.20-1.

Table 5.9-1. Miles of EPL Project Alignment within Designated Fire Hazard Severity Zones

Project Segment	Fire Hazard Severity Zone	Distance (miles)	LRA* (miles)	SRA* (miles)	FRA* (miles)	CPUC FTA* (miles)
1	High	8.14	22.65	10.58	31.95	Elevated; ~1.4
	Moderate	55.02				
	Unzoned	2.27				
2	High	7.99	22.02	10.88	31.55	Elevated; ~1.1
	Moderate	52.46				
	Unzoned	4.51				
3	Moderate	82.44	7.92	0.00	74.52	None
4	Moderate	82.66	7.92	0.00	74.74	None

*Abbreviations:
FRA: Federal Responsibility Area
LRA: Local Responsibility Area
FTA: Fire Threat Area
SRA: State Responsibility Area

The CPUC Fire-Threat Map is a single statewide fire-threat map that designates areas where (1) there is an elevated risk for destructive power line fires, and (2) where stricter fire-safety regulations should apply. CPUC Fire-Threat Map data are presented in Figure 5.20-3; as seen in Figure 5.20-3, the western portions of Segments 1 and 2 are located in a CPUC-designated Fire Threat Area Tier 2 – Elevated area. No other portion of the EPL Project is located in a CPUC-designated Fire Threat Area.

5.9.1.4 Fire Hazard, Nevada

Segments 5 and 6 in Nevada are located on lands identified as non-burnable, and on lands with wildfire hazard potential generally ranging from very low to moderate, with some short sections located on lands with a high wildfire hazard potential (Dillon and Gilbertson-Kay 2020).

5.9.1.5 Metallic Objects

The EPL Project alignment crosses, or is otherwise located nearer than 25 feet to, petroleum pipelines and natural gas pipelines; these are displayed in Figure 5.19-1.

The EPL Project alignment crosses, or is otherwise located nearer than 25 feet to, metallic cable (i.e., electrical conductor) as follows: in Segments 1 and 2, where the alignment is crossed by four SCE 115 kV subtransmission lines, and where the alignment is crossed in three locations by two SCE 500 kV transmission lines. Segments 3 and 4 are not crossed by any transmission or subtransmission lines (see Figure 5.19-1). Segments 5 and 6 are crossed by one 230 kV transmission line and two 500 kV transmission lines. The EPL Project alignment crosses numerous distribution voltage lines.

5.9.2 Regulatory Setting

Federal, State, and local regulations were reviewed for applicability to the EPL Project.

5.9.2.1 Regulatory Setting

5.9.2.1.1 Federal

5.9.2.1.1.1 Clean Air Act

The Clean Air Act (CAA; 42 U.S.C. § 7401 et seq.) provides measures aimed at preventing the accidental release of hazardous materials into the atmosphere. Regulations implementing the CAA and governing hazardous materials emissions are provided in Title 40, Part 68 of the CFR. Implementation of these regulations is intended to prevent the accidental release of hazardous materials into the environment.

5.9.2.1.1.2 Clean Water Act (33 U.S.C. Section 1251 et seq.)

Enacted in 1972, the Federal Clean Water Act (CWA; 33 U.S.C. § 1251 et seq.) and subsequent amendments outline the basic protocol for regulating discharges of pollutants to waters of the U.S. It is the primary federal law applicable to water quality of the nation's surface waters, including lakes, rivers, and coastal wetlands. Enforced by the USEPA, it was enacted "… to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." The CWA authorizes States to adopt water quality standards and includes programs addressing both point and non-point pollution sources. The CWA also established the NPDES program, and provides the USEPA the authority to implement pollution control programs, such as setting wastewater standards for industry and water quality standards for surface waters (see below for a discussion of the NPDES program).

In California, programs and regulatory authority under the CWA have been delegated by USEPA to the SWRCB and its nine RWQCBs. Under Section 402 of the CWA as delegated to the State of California, a discharge of pollutants to navigable waters is prohibited unless the discharge complies with an NPDES permit. The SWRCB and RWQCBs have developed numeric and narrative water quality criteria to protect beneficial uses of state waters and waterways.

5.9.2.1.1.3 CFR Title 14

All airports and navigable airspace not administered by the DoD are under the jurisdiction of the FAA. Title 14, Part 77 of the CFR establishes the standards and required notification for objects affecting navigable airspace. In general, construction projects exceeding 200 feet in height—or those extending at a ratio greater than 100 to 1 (horizontal to vertical) from a public or military airport runway more than 3,200 feet long, out to a horizontal distance of 20,000 feet—are considered potential obstructions and require FAA notification. In addition, construction projects extending at a ratio greater than 50 to 1 (horizontal to vertical) from a public or military airport runway measuring 3,200 feet or less, out to a horizontal distance of 10,000 feet, are considered potential obstructions and require FAA notification. Title 14, Part 133 of the CFR also requires an operating plan to be developed in coordination with and approved by the local FAA Flight Standards District Office that has jurisdiction over when helicopter use would be required.

5.9.2.1.1.4 Comprehensive Environmental Response, Compensation, and Liability Act (Superfund) of 1980 (42 U.S.C. §9601 et seq.)

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) provides a federal Superfund to clean up uncontrolled or abandoned hazardous-waste sites, as well as accidents, spills, and other emergency releases of pollutants and contaminants into the environment. Through CERCLA, EPA has the power to seek out those parties responsible for any release and ensure their cooperation in the cleanup.

5.9.2.1.1.5 Occupational Safety and Health Administration (29 CFR 1900-1910)

Established under the Occupational Safety and Health Administration Act of 1970, the Administration regulates workplace safety and health. The agency's mission is to prevent work-related injuries, illnesses, and deaths.

5.9.2.1.1.6 Resource Conservation and Recovery Act (42 U.S.C. §6901 et seq.)

The Resource Conservation and Recovery Act (RCRA) regulates hazardous waste from the time that waste is generated, through to its management, storage, transport, and treatment, until its final disposal. The EPA has authorized the DTSC in California and the NDEP to administer their respective RCRA programs.

5.9.2.1.1.7 The Superfund Amendments and Reauthorization Act of 1986 Title III (40 CFR 68.110 et seq.)

The Superfund Amendments and Reauthorization Act (SARA) amended CERCLA and established a nationwide emergency planning and response program, and imposed reporting requirements for businesses that store, handle, or produce significant quantities of extremely hazardous materials. The act requires states to implement a comprehensive system to inform local agencies and the public when a significant quantity of such materials is stored or handled at a facility. Additionally, SARA identifies requirements for planning, reporting, and notification concerning hazardous materials.

5.9.2.1.1.8 Hazardous Materials Transportation Act (49 U.S.C. § 5101 et seq)

The U.S. Department of Transportation has the regulatory responsibility for the safe transportation of hazardous materials under the Hazardous Materials Transportation Act (HMTA), as amended and codified in 49 U.S.C. § 5101 et seq.

5.9.2.1.2 State

5.9.2.1.2.1 California Emergency Management Agency

The California Emergency Management Agency (Cal/EMA) was formed January 1, 2009, as the result of a merger between the Governor's Office of Emergency Services (OES) and the Office of Homeland Security (OHS). The Hazardous Materials Unit of the Cal/EMA is responsible for hazmat emergency planning and response, spill release and notification, and hazmat enforcement of the Unified Program.

5.9.2.1.2.2 California Environmental Protection Agency

The California Environmental Protection Agency (Cal/EPA) is the California state agency responsible for developing, implementing, and enforcing the state's environmental protection laws that ensure clean air, clean water, clean soil, safe pesticides, and waste recycling and reduction. Cal/EPA oversees the DTSC and SWRCB. Cal/EPA has implementation authority for the Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program) per CCR Title 27, Division 1, Subdivision 4, Chapter 1.

5.9.2.1.2.3 California Public Utilities Commission General Order 95

GO 95 contains requirements and specifications for overhead electrical line construction. These requirements are intended to ensure safety to workers engaged in the construction, O&M, and use of electrical facilities. The regulations are also intended to ensure the general reliability of the State's utility infrastructure and services. Rule 35 of GO 95 establishes minimum clearances between line conductors and nearby vegetation for fire prevention purposes. These minimum clearances must be maintained through tree trimming prior to construction and throughout O&M of utility facilities.

5.9.2.1.2.4 California Public Utilities Commission General Order 166

The purpose of the standards contained in GO 166 is to ensure that jurisdictional electric utilities are prepared for emergencies and disasters in order to minimize damage and inconvenience to the public which may occur as a result of electric system failures, major outages, or hazards posed by damage to electric distribution facilities. The standards require, among others, that each jurisdictional electric utility prepare an emergency response plan and update the plan annually; conduct annual emergency training and exercises using the utilities emergency response plan; and coordinate emergency plans with state and local public safety agencies.

5.9.2.1.2.5 California State Hazard Mitigation Plan

The 2018 California State Hazard Mitigation Plan (SHMP) represents the state's primary hazard mitigation guidance document. The 2018 SHMP continues to build upon the state's commitment to reduce or eliminate potential risks and impacts of natural and human-caused disasters to help communities with their mitigation and disaster resiliency efforts. The 2018 plan includes: an updated statewide risk assessment, disaster history, and statistics; recent mitigation progress, success stories, and best practices; updated state hazard mitigation goals, objectives, and strategies; and updated climate mitigation progress and adaptation strategies. FEMA approved California's 2018 SHMP on September 28, 2018.

5.9.2.1.2.6 Department of Toxic Substances Control

Under Government Code Section 65962.5(a), the DTSC is required to compile and update as appropriate, but at least annually, and submit to the Secretary for Environmental Protection a list of all of the following: 1) All hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the Health and Safety Code. 2) All land designated as hazardous waste property or border zone property pursuant to Article 11 (commencing with Section 25220) of Chapter 6.5 of Division 20 of the Health and Safety Code.

5.9.2.1.2.7 Division of California Occupational Safety and Health, Department of Industrial Relations

The Division of California Occupational Safety and Health protects workers and the public from safety hazards (CCR Title 8.)

5.9.2.1.2.8 Health and Safety Code § 13009

Health and Safety Code Section 13009 permits CAL FIRE to file civil actions to recover fire suppression costs from a party who causes a fire (1) negligently, or (2) in violation of a law or an order to correct a fire hazard. CAL FIRE established a Civil Cost Recovery (CCR) Program to satisfy the statute's intent to assign financial responsibility to culpable parties and to prevent fires through deterrence.

5.9.2.1.2.9 Public Resources Code §§ 4292-4293

Public Resources Code (PRC) Section 4292 requires a 10-foot clearance of any tree branches or ground vegetation from around the base of power poles carrying more than 110 kV. The firebreak clearances required by PRC Section 4292 are applicable within an imaginary cylindrical space surrounding each pole or tower on which a switch, fuse, transformer or lightning arrester is attached and surrounding each deadend or corner pole. PRC Section 4293 presents guidelines for line clearance including a minimum of 10 feet of vegetation clearance from any conductor operating at 110 kV or higher.

5.9.2.1.3 Local

The CPUC has sole and exclusive state jurisdiction over the siting and design of the EPL Project. Pursuant to GO 131-D, Section XIV.B, "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by

public utilities subject to the CPUC's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters." Consequently, public utilities are directed to consider local regulations and consult with local agencies, but the county and cities' regulations are not applicable as the county and cities do not have jurisdiction over the EPL Project. Accordingly, the following discussion of local land use regulations is provided for informational purposes only.

5.9.2.1.3.1 Certified Unified Program Agency (CUPA)

The CUPA is the agency certified by the DTSC to conduct the Unified Program. The program consists of hazardous waste generator and on-site treatment programs, above-ground and underground storage tank programs, Hazardous Materials Management, Business Plans, and Inventory Statements, and the Risk Management and Prevention Program.

The San Bernardino County Fire Department, Hazardous Materials Division, is the CUPA responsible for administering the hazardous materials program within San Bernardino County.

5.9.2.1.3.2 San Bernardino County Multi-Jurisdictional Hazard Mitigation Plan

The purpose of the Multi-Jurisdictional Hazard Mitigation Plan (MJHMP) is to demonstrate the plan for reducing and/or eliminating risk in the unincorporated area of the County and within areas overseen or managed by the Flood Control District, Fire District and Special Districts Department. The MJHMP process encourages communities within the unincorporated county to develop goals and projects that will reduce risk and build a more disaster resilient community by analyzing potential hazards.

5.9.2.1.3.3 Clark County Comprehensive Plan

The Safety Element of the Clark County Comprehensive Plan contains the following policies to address hazards and hazardous materials:

- Minimize public exposure to natural and man-made hazards
- Ensure that land use plans and development regulations consider natural and man-made hazards and mitigation programs
- Provide public facilities and services to protect against natural and man-made hazards
- Support educational programs to inform the community about natural and man-made hazards
- Coordinate with local, regional, State and federal governments and the private sector to provide protection against natural and man-made hazards

5.9.2.1.3.4 South Clark County Land Use Plan

The South Clark County Land Use Plan does not contain any specific goals or policies that are relevant to the EPL Project.

5.9.2.1.3.5 City of Boulder Master Plan

The Boulder City Master Plan does not contain any specific goals or policies that are relevant to the EPL Project.

5.9.2.2 Touch Thresholds

5.9.2.2.1 California Division of Occupational Safety and Health

California Division of Occupational Safety and Health (Cal/OSHA) regulations on electrical safety require California employers to provide workers with a safe and healthful workplace. These regulations

are contained in Title 8 of the California Code of Regulations. Most of the electrical health and safety regulations can be found in Chapter 4, Subchapter 5 in the Electrical Safety Orders, Sections 2299 through 2989.

Cal/OSHA regulations on electrical safety are grouped by electrical voltage. Regulations for low voltage (0-600V) are given in Sections 2299-2599 and the regulations for high voltage (above 600V) are given in Sections 2700-2989. Section 1518 addresses the safety requirements for the protection of workers and others from electric shock in construction.

5.9.2.2.2 Nevada Division of Industrial Relations

Nevada has adopted by reference the federal OSHA regulations on electrical safety.

5.9.3 Impact Questions

5.9.3.1 Impact Questions

The significance criteria for assessing the impacts to hazards and hazardous materials come from the CEQA Environmental Checklist. According to the CEQA Checklist, a project causes a potentially significant impact if it would:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school
- Be located on a site that is included on a list of hazardous material sites, compiled pursuant to Government Code Section 65962.5, and as a result would create a significant hazard to the public or the environment
- For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, the project would result in a safety hazard or excessive noise for people residing or working in the project area
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan
- Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires

5.9.3.2 Additional CEQA Impact Questions

The CPUC has identified additional CEQA significance criteria. According to these additional CEQA significance criteria, a project causes a potentially significant impact if it would:

- Create a significant hazard to air traffic from the installation of new power lines and structures.
- Create a significant hazard to the public or environment through the transport of heavy materials using helicopters?
- Expose people to a significant risk of injury or death involving unexploded ordnance?
- Expose workers or the public to excessive shock hazards?

5.9.4 Impact Analysis

5.9.4.1 Impact Analysis

5.9.4.1.1 Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

5.9.4.1.1.1 Construction

Less than Significant Impact. No acutely hazardous materials would be used or stored on location during construction of the EPL Project. Construction of the EPL Project would require the use of gasoline, diesel fuel, oil, solvents, and lubricants associated with vehicles and construction activities. Hazardous materials management would include implementation of BMPs presented in Section 3.5.13.2 related to fueling and the handling, use, and storage of hazardous materials. All transport of hazardous materials would comply with applicable laws, rules, and regulations, and would use applicable BMPs, including the acquisition of required shipping papers, package marking, labeling, transport vehicle placarding, training, and registrations. SCE crews and/or SCE's construction contractor would implement proper hazardous materials management activities, and would implement the HMWMP for the EPL Project during construction activities (Appendix M); the HMWMP outlines the proper procedures for the handling, use, storage, and disposal of hazardous materials.

An inadvertent release could also occur from the use of hazardous materials during construction within temporary material yards, while transporting hazardous materials to and from work areas, or during refueling and servicing of equipment. However, an EPL Project-specific HMWMP (Appendix M) would be implemented throughout construction of the EPL Project. The plan includes safety information regarding the transport, use, and disposal of hazardous materials, ensuring the transport, use, and disposal of hazardous materials would be in compliance with applicable laws, rules, and regulations. Therefore, because all hazardous materials would be transported, used, and disposed of in accordance with applicable rules, regulations, and SCE standard protocols designed to protect the environment, workers, and the public, less than significant impacts would result.

5.9.4.1.1.2 Operations

No Impact. As presented in Chapter 3, SCE is currently performing O&M activities, including inspections, along the transmission lines included under the EPL Project. No material changes in O&M activities are anticipated with implementation of the EPL Project, and therefore no new impacts would be realized under this criterion during operations and maintenance.

5.9.4.1.2 Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

5.9.4.1.2.1 Construction

Less than Significant Impact. Construction of the EPL Project would require the limited use of hazardous materials, such as fuels, lubricants, and cleaning solvents. As described in Chapter 3, fuel storage and refueling of vehicles and helicopters may occur in designated areas during construction activities. A small volume of fuels, lubricants, and solvents with low toxicity are anticipated to be used during the construction of the EPL Project. All hazardous materials would be stored, handled, and used in accordance with applicable regulations, and safety data sheets (SDS) would be available. The most likely incidents involving these hazardous materials are associated with minor spills or drips.

In the event of a release of hazardous materials, such as minor spills and drips from construction equipment and refueling, BMPs presented in Section 3.5.13.2, and measures detailed in the EPL Project HMWMP (Appendix M), would be implemented to ensure quick response to minor spills and minimal impacts to the environment. Further, the SWPPP developed for the EPL Project would identify the locations for storing hazardous materials during construction, as well as protective measures, notification, and cleanup requirements for any incidental spills or other potential releases of hazardous materials. In addition, implementation of the WEAP as described in Chapter 3 would provide site personnel with instruction on the site-specific BMPs and the SWPPP, when applicable.

During construction, there is a very remote potential that subsurface utilities (e.g., a natural gas line) or structures (e.g., an underground storage tank) might be encountered and damaged during installation of the inter-set structures, resulting in a release of a hazardous material. During construction, screening activities would include contacting DigAlert, conducting visual observations, and using buried line locating equipment. In addition, the HMWMP (Appendix M) includes measures related to the management of discoveries of unanticipated contamination and response procedures to address a release of materials.

Through implementation of BMPs and measures contained in the HMWMP, among other standard practices, less than significant impacts would be realized.

5.9.4.1.2.2 Operations

No Impact. As presented in Chapter 3, SCE is currently performing O&M activities, including inspections, along the transmission lines included under the EPL Project. No material changes in O&M activities are anticipated with implementation of the EPL Project, and therefore no new impacts would be realized under this criterion during operations and maintenance.

5.9.4.1.3 Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

5.9.4.1.3.1 Construction

No Impact. No work under the EPL Project would occur within one-quarter mile of an existing or proposed school. Therefore, no impacts would be realized.

5.9.4.1.3.2 Operations

No Impact. As presented in Chapter 3, SCE is currently performing O&M activities, including inspections, along the transmission lines included under the EPL Project. No material changes in O&M activities are anticipated with implementation of the EPL Project, and therefore no new impacts would be realized under this criterion during operations and maintenance.

5.9.4.1.4 Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

5.9.4.1.4.1 Construction

No Impact. No component of the EPL Project is located on a site listed pursuant to Government Code Section 65962.5; therefore, no impacts would be realized under this criterion.

5.9.4.1.4.2 Operations

No Impact. No component of the EPL Project is located on a site listed pursuant to Government Code Section 65962.5; therefore, no impacts would be realized under this criterion.

5.9.4.1.5 For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

5.9.4.1.5.1 Construction

No Impact. The western portions of Segment 1 and 2 are located in the area addressed in the Comprehensive Land Use Plan: Hesperia Airport (Vidal 1991). Hesperia Airport is located within 0.25 miles of Segment 2 where work under the EPL Project would be performed.

Under the EPL Project, the following work would occur within the area addressed in the Comprehensive Land Use Plan: Hesperia Airport: install one new inter-set structure, and modify the hardware on three existing structures. This work would all occur within the existing alignment. Prior to construction, SCE would submit the required Notice of Proposed Construction or Alteration to the FAA pursuant to Title 14 CFR, Section 77.9; a draft of this Notice is provided in Appendix V. SCE does not anticipate that the FAA will determine that any EPL Project components should be modified to include marker balls and/or aviation lighting for safety purposes.

As described in Section 5.13, construction of the EPL Project would not expose people to noise levels in excess of standards established in a general plan or ordinance. Further, increases in noise levels in the vicinity of individual construction work areas during construction will be short term, intermittent, and temporary, and will not expose people residing near individual construction work areas to excessive noise levels. The locations where work would be conducted under the EPL Project are located outside the 60 dBA CNEL noise contour for the Hesperia Airport. Thus, project construction workers will not be exposed to excessive noise levels from airport operations.

Because construction of the EPL Project will not expose people residing within the airport plan area and near individual construction work areas to excessive noise levels, and because construction of the EPL Project will not expose workers to excessive noise levels, no impact will be realized under this criterion.

5.9.4.1.5.2 Operations

No Impact. As presented in Chapter 3, SCE is currently performing O&M activities, including inspections, along the transmission lines included under the EPL Project. No material changes in O&M activities are anticipated with implementation of the EPL Project, and therefore no new impacts would be realized under this criterion during operations and maintenance.

5.9.4.1.6 Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

5.9.4.1.6.1 Construction

Less than Significant Impact. The EPL Project alignment crosses evacuation routes including SR-18, SR-247, and I-40 (San Bernardino County 2018). As discussed in Section 5.17, the EPL Project would not be expected to significantly impact traffic circulation or increase demands on existing emergency response services during temporary construction activities and would not significantly impact emergency access in the area or increase the demand for existing emergency response services. During construction,

SCE would implement traffic control measures consistent with those published in the Manual on Uniform Traffic Control Devices, as written and amended by Caltrans for the state of California (CA MUTCD) and use standard templates from the California Temporary Traffic Control Handbook (CATTCH) (California Inter-Utility Coordinating Committee 2018). These measures will be implemented as and where necessary as described in the CA MUTCD and/or CATTCH, or in ministerial permits. No traffic control measures would need to be implemented in Nevada as the EPL Project would not involve the closure of a public road or involve performing work across a public road. Therefore, the impacts associated with construction activities would be less than significant under this criterion.

5.9.4.1.6.2 *Operations*

No Impact. As presented in Chapter 3, SCE is currently performing O&M activities, including inspections, along the transmission lines included under the EPL Project. No material changes in O&M activities are anticipated with implementation of the EPL Project, and therefore no new impacts would be realized under this criterion during operations and maintenance.

5.9.4.1.7 Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

5.9.4.1.7.1 Construction

Less than Significant Impact. As previously discussed, the majority of the EPL Project alignment is located in areas within a CAL FIRE moderate fire hazard severity zone; no portion of the EPL Project alignment is located in a very high fire hazard severity zone.

High heat or sparks from vehicles or equipment have the potential to ignite dry vegetation and cause fires. However, the EPL Project activities would generally be located within SCE's existing ROW where vegetation will be cleared or trimmed. Vehicles and equipment would primarily use existing roads and would also travel overland to temporary construction areas where and when such a method can be used safely. In addition, SCE would implement standard fire prevention protocols contained in the EPL Project Fire Prevention and Emergency Response Plan (Appendix G) during construction activities and comply with applicable laws and regulations.

As presented in the Fire Prevention and Emergency Response Plan, in the event that the National Weather Service issues a Red Flag Warning during construction of the EPL Project, additional measures would be implemented to address smoking and fire rules, storage and parking areas, the use of gasoline-powered tools, the use of spark arresters on construction equipment, road closures, the use of a fire guard, fire suppression tools, fire suppression equipment, and training requirements. The portions of the EPL Project area located within moderate to very high fire hazard severity zones would generally be grubbed/have vegetation trimmed before the staging of equipment, thereby minimizing the potential for vehicles or equipment to start a fire. As a result of these measures, construction of the EPL Project would have a less than significant impact to the risk of loss, injury, or death involving wildland fires.

Within California, SCE participates with CAL FIRE, the California Governor's OES, and various city and county fire agencies in the Red Flag Fire Prevention Program, and complies with California PRC Sections 4292 and 4293 related to vegetation management in transmission line corridors. The portions of the EPL Project located within moderate or high fire hazard severity zones would generally be cleared of vegetation and graded prior to the staging of equipment, minimizing the risk of construction vehicles starting a fire. Further, SCE's Wildfire Mitigation Plan (Appendix Q) describes strategies, programs and activities that are in place, being implemented or are under development by SCE to proactively address and mitigate the threat of electrical infrastructure associated ignitions that could lead to wildfires, further

harden the electric system against wildfires and enhance wildfire suppression efforts, meeting the requirements of PUC Section 8386. Based on SCE's participation in the Red Flag Fire Prevention Program, compliance with applicable State and federal laws and regulations during construction, and implementation of the measures contained in the Fire Prevention and Emergency Response Plan; and because the very large majority of activities under the EPL Project would be performed in largely uninhabited and undeveloped areas, impacts resulting from wildland fire would be less than significant.

5.9.4.1.7.2 Operations

No Impact. As presented in Chapter 3, SCE is currently performing O&M activities, including inspections, along the transmission lines included under the EPL Project. No material changes in O&M activities are anticipated with implementation of the EPL Project, and therefore no new impacts would be realized under this criterion during operations and maintenance.

5.9.4.1.8 Would the project create a significant hazard to air traffic from the installation of new power lines and structures?

5.9.4.1.8.1 Construction

No Impact. Construction of the EPL Project would not require the use of construction equipment of a height or location that would require marking per Title 14 CFR, Section 77.9; therefore, no hazard to air traffic would result during construction.

5.9.4.1.8.2 Operations

No Impact. No new power lines would be installed under the EPL Project. The new inter-set structures installed under the EPL Project would be of equivalent height to adjacent structures, and thus would not create a hazard to air traffic.

There are no height restrictions, beyond those promulgated by the FAA, identified for Hesperia Airport in the Comprehensive Land Use Plan: Hesperia Airport.

No portion of the EPL Project alignment is located in an area with military requirements for above ground facilities.

Prior to construction, SCE will submit the required Notice of Proposed Construction or Alteration to the FAA pursuant to Title 14 CFR, Section 77.9. With respect to the EPL Project, the FAA would conduct its own analysis and may recommend no changes to the design of the EPL Project; or may make determinations regarding recommended design modifications, which could include, for example, the placement of marker balls on wire spans. SCE would evaluate the FAA determinations for reasonableness and feasibility, and in accordance with Title 14, Part 77 of the CFR, SCE may petition the FAA for a discretionary review of a determination to address any issues with the FAA determination. Through compliance with the determination or the presence of non-EPL Project mitigating factors, potential hazards to air traffic would be eliminated, and therefore there would be no impact under this criterion.

5.9.4.1.9 Would the project create a significant hazard to the public or environment through the transport of heavy materials using helicopters?

5.9.4.1.9.1 Construction

No Impact. The EPL Project would not create a hazard to the public or environment through the transport of heavy materials using helicopters. SCE has developed, and would implement during construction, a Helicopter Use and Safety Plan in accordance with 14 CFR Part 77, and in coordination with and to be approved by the FAA Flight Standards District Office (Appendix O). SCE would also obtain, as

necessary, approval of a Congested Area Plan from the FAA. Through these activities and agency coordination, SCE would eliminate the potential for creating a significant hazard to the public or environment through the transport of heavy materials using helicopters, and no impact would be realized under this criterion.

5.9.4.1.9.2 Operations

No Impact. As presented in Chapter 3, SCE is currently performing O&M activities, including inspections, along the transmission lines included under the EPL Project. No material changes in O&M activities are anticipated with implementation of the EPL Project, and therefore no new impacts would be realized under this criterion during operations and maintenance.

5.9.4.1.10 Would the project expose people to a significant risk of injury or death involving unexploded ordnance?

5.9.4.1.10.1 Construction

No Impact. A portion of Segment 1 in the Lucerne Valley may overlie the former Victorville Practice Bombing Range No.6. No work under the EPL Project would occur in this area, and therefore there would be no impact under this criterion.

5.9.4.1.10.2 Operations

No Impact. As presented in Chapter 3, SCE is currently performing O&M activities, including inspections, along the transmission lines included under the EPL Project. No material changes in O&M activities are anticipated with implementation of the EPL Project, and therefore no new impacts would be realized under this criterion during operations and maintenance.

5.9.4.1.11 Would the project expose workers or the public to excessive shock hazards?

5.9.4.1.11.1 Construction

No Impact. The design of EPL Project components, and the construction of those components, would be compliant with all applicable federal and state regulations and standards. To reduce shock hazards and avoid electrocution of workers or the public, SCE would comply with the provisions found in Title 8 of the CCR, particularly the electrical health and safety regulations found in Chapter 4, Subchapter 5 in the Electrical Safety Orders, Sections 2700-2989, which are relevant to high voltage work.

5.9.4.1.11.2 Operations

No Impact. The design of EPL Project components, and the operation and maintenance of those components, would be compliant with all applicable federal and state regulations and standards. To reduce shock hazards and avoid electrocution of workers or the public, SCE would comply with the provisions found in Title 8 of the CCR, particularly the electrical health and safety regulations found in Chapter 4, Subchapter 5 in the Electrical Safety Orders, Sections 2700-2989, which are relevant to high voltage work.

5.9.4.2 Hazardous Materials

The hazardous materials (i.e., chemicals, solvents, lubricants, and fuels) that would be used during construction and operation of the EPL Project, and an estimate of the quantity of each hazardous material that would be consumed during construction, are presented in Table 3.5-6. The quantity of these materials that may be stored on-site during construction is unknown and would be determined by the construction contractor during their pre-construction planning. As presented in Chapter 3, SCE is currently performing

O&M activities along the transmission lines included under the EPL Project. No material changes in O&M activities—including the storage of materials—are anticipated with implementation of the EPL Project.

5.9.4.3 Air Traffic Hazards

Discussions of how the EPL Project would not conflict with height restrictions identified in the airport land use plan and how the EPL Project would comply with any FAA or military requirements for the above ground facilities are presented above in Section 5.9.4.1.8.

5.9.4.4 Accident or Upset Conditions

A description of how the EPL Project components would be designed, constructed, operated, and maintained to minimize potential hazard to the public from the failure of project components as a result of accidents or natural catastrophes is presented above in Section 5.9.4.1.2.

5.9.4.5 Shock Hazard

There is no infrastructure along the EPL Project that may be susceptible to new induced current from the installation of components under the EPL Project. Where infrastructure that may be susceptible to induced current from components of the EPL Project are present, this infrastructure is generally crossed by the EPL Project alignment, rather than running in parallel. Further, the operating conditions of the new conductor would be identical to the existing operating conditions; therefore, no new induced current would be realized from the EPL Project. The strategies that would be employed to reduce shock hazards and avoid electrocution of workers and the public are presented above in Section 5.9.4.1.12.

5.9.5 CPUC Draft Environmental Measures

There are no CPUC Draft Environmental Measures identified for the Hazards and Hazardous Materials resource area.

5.10 Hydrology and Water Quality

This Section of the PEA describes the existing hydrology and water quality along the EPL Project alignment, as well as the potential impacts associated with construction and operation of the EPL Project.

5.10.1 Environmental Setting

The EPL Project is located in unincorporated San Bernardino County and the City of Hesperia in California, and in unincorporated Clark County and the City of Boulder City in Nevada. The EPL Project is located entirely within the Mojave Desert Geomorphic Province. This Province is characterized by narrow mountain ranges, generally trending north-south or northwest-southeast, which are separated by roughly parallel basins.

Elevation in the EPL Project area ranges from a low of approximately 1,125 ft amsl to a high of approximately 4,600 ft amsl. Annual and diurnal temperatures vary significantly, with highs typically exceeding 100 degrees Fahrenheit (°F) in the summer to lows of near 30°F in the winter. Average rainfall is approximately 4 to 5 inches per year along the EPL Project alignment.

5.10.1.1 Waterbodies

Waters of the U.S. occur across the EPL Project alignment; no wetlands are present along the EPL Project alignment. Surface drainages within the EPL Project alignment are identified as intermittent or ephemeral; there are no natural perennial drainages along the EPL Project alignment. Within the EPL Project alignment, approximately 552.7 acres and approximately 24,076,000 square feet of potentially jurisdictional non-wetland waters subject to the jurisdiction of the USACE, RWQCBs, and NDEP were identified. The drainages total 1,187,264 feet.

Table 5.10-1 identifies, by milepost, the named features crossed by the EPL Project alignment; these are shown in Figure 5.10-1. Ephemeral waterbodies are cataloged in the Wetlands and Other Waters Jurisdictional Delineation Report contained in Appendix C. The water quality classification, as available, is also presented.

Table 5.10-1. Waterbodies Crossed by EPL Project Alignment

Segment(s)	Project Milepost	Waterbody	Water Quality Classification
1 and 2	Segment 1: 2.6 Segment 2: 2.6	Governor Edmund G Brown East Branch California Aqueduct	Not Impaired
1 and 2	Segment 1: 8.0 Segment 2: 7.9	Mojave River	Impaired
3 and 4	Segment 3: 29.7 Segment 4: 29.7	Kelso Wash	Not Impaired
3 and 4	Segment 3: 75.3 Segment 4: 75.6	Willow Wash	Not Impaired

5.10.1.2 Water Quality

In California, the EPL Project alignment is located in areas covered by the Lahontan RWQCB Lahontan Region Basin Plan (LRWQCB 1995) and the Colorado River RWQCB Water Quality Control Plan for the Colorado River Basin (CRRWQCB 2019). The Plans identify beneficial uses and water quality objectives that are the water quality standards for the Regions. Beneficial uses for drainages located within the EPL Project area are shown below in Table 5.10-2. In Nevada, the NDEP designates the beneficial uses of waters; no features crossed by the EPL Project alignment have a designated beneficial use.

Table 5.10-2. Beneficial Uses within the EPL Project Area

Feature	MUN	AGR	PRO	IND	GWR	FRSH	NAV	POW	REC-1	REC-2	COMM	AQUA	WARM	COLD	SAL	WILD	BIOL	RARE	MIGR	SPWN	WQE	FLD
Lahontan Region (R6)																						
Mojave River	X	X			X				X	X	X		X	X		X						
Troy Valley HU Minor Surface Waters	X	X			X				X	X			X	X		X						
Broadwell HU Valley Minor Surface Waters	X	X			X				X	X	X		X	X		X						
Kelso HU Minor Surface Waters	X	X			X				X	X			X	X		X						
Soda Lake HU Minor Surface Waters	X	X			X				X	X			X	X		X						
Colorado River Region (R7)																						
Unlisted Perennial and Intermittent Strems	X				I X				I X	I X			I X			I X						
Washes (Ephemeral Streams)					I					I						I						

MUN – Municipal and Domestic Supply
AGR – Agricultural Supply
PRO – Industrial Process Supply
WILD – Wildlife Habitat
IND – Industrial Service Supply
GWR – Ground Water Recharge
FRSH – Freshwater Replenishment
NAV – Navigation
POW Hydropower Generation

REC1 – Water Contact Recreation
REC2 – Non-contact Water Recreation
COMM – Commercial and Sport Fishing
AQUA – Aquaculture
COLD – Cold Freshwater Habitat
WARM – Warm Freshwater Habitat
SAL – Inland Saline Water Habitat
BIOL – Preservation of Biological Habitats of Special Significance

RARE – Rare, Threatened or Endangered Species
MGR – Migration of Aquatic Organisms
SPWN – Spawning, Reproduction, and Development
WQE – Water Quality Enhancement
FLD – Flood Peak Attenuation/Flood Water Storage

I—Intermittent Use; X—Current or Potential Use

5.10.1.3 Impaired Waterbodies Clean Water Act Section 303(d)

The SWRCB and RWQCBs, and NDEP, assess water quality data for waters every two years to determine if they contain pollutants at levels that exceed protective water quality criteria and standards. This biennial assessment is required under Section 303(d) of the CWA. In the area along the EPL Project alignment, the Mojave River is listed as a 303(d) impaired water.

5.10.1.4 Groundwater Basins

No USEPA-designated sole source aquifers for drinking water underlie any portion of the EPL Project alignment.

Groundwater resources (basins) in California are delineated by the California Department of Water Resources (DWR). A basin is defined as an alluvial aquifer or a stacked series of alluvial aquifers with reasonably well-defined boundaries in a lateral direction and having a definable bottom. Groundwater in

the region is used primarily for municipal purposes. The groundwater basins crossed by the EPL Project alignment in Segments 1 and 2 include: Upper Mojave River Valley, Lucerne Valley, Johnson Valley—Soggy Lake, Johnson Valley—Upper Johnson Valley, Bessemer Valley, Iron Ridge Area, and Lower Mojave River Valley. The groundwater basins crossed by the EPL Project alignment in Segments 3 and 4 include: Lavic Valley, Broadwell Valley, Soda Lake Valley, Kelso Valley, and Ivanpah Valley. These are shown in Figure 5.10-2.

Groundwater resources (basins) in Nevada are delineated by the Nevada Department of Conservation and Natural Resources. The groundwater basins crossed by the EPL Project alignment in Segments 5 and 6 include: Ivanpah Valley, Piute Valley, and Eldorado Valley. These are shown in Figure 5.10-2.

The depth to groundwater across the EPL Project alignment varies geographically and temporally. While shallow groundwater may be found near drainages and other features (discussion in Section 5.7, Geology and Soils), the depth to groundwater across the alignment generally exceeds 100 feet. Utilizing DWR well completion reports along the EPL Project alignment in California as a proxy for depth to groundwater indicates that groundwater levels range considerably, but generally exceeds 100 feet, with some wells drilled to depths of 1,300 feet or more, and many wells are drilled to depths of 200 to 500 feet (Figure 5.10-3b).

5.10.1.4.1 Groundwater Quality

Groundwater along the EPL Project alignment is used largely for public and domestic water supply. Summaries of groundwater quality from the DWR's Bulletin 118 (DWR 2020) are provided for groundwater basins in California in the sections below. The quality of groundwater in the basins in Nevada is considered only fair to poor, principally because it is high in total solids (Nevada Department of Conservation and Natural Resources 1966).

5.10.1.4.1.1 Upper Mojave River Valley

Calcium bicarbonate character waters are found near the San Bernardino Mountains and near the Mojave River channel. Sodium chloride waters are found in Apple Valley. Small areas of calcium-sodium sulfate and calcium-sodium bicarbonate also occur in this basin. Total dissolved solids content typically is less than 500 mg/L, but concentrations up to 1,105 mg/L were found near Apple Valley. Electrical Conductivity readings range as high as 1,529 µmhos, with lower values of 650 µmhos found near Apple Valley, and 550 µmhos found near Adelanto. High nitrate concentrations occur in the southern portion of the basin and high iron and manganese concentrations are found near Oro Grande.

5.10.1.4.1.2 Lucerne Valley

Calcium-magnesium bicarbonate water is found in the southwestern part of the basin. TDS content range from 200 to 500 mg/L in the southwestern part of the basin except near Rabbit Springs where they are as high as 2,000 mg/L. In the southeastern part of the basin, there is a mixture of calcium bicarbonate and magnesium-sodium sulfate water. Where magnesium-sodium sulfate water predominates, TDS concentrations range from 300 to 1,200 mg/L and average about 800 mg/L. Groundwater near Lucerne Lake is sodium chloride in character and has TDS concentrations that range from 1,200 to 7,000 mg/L and average about 5,000 mg/L. In a shallow aquifer zone, TDS concentrations average about 2,700 mg/L; whereas, in the deeper aquifer zone, they average about 1,300 mg/L. High nitrate and TDS concentrations associated with irrigation are found in the shallow aquifer.

5.10.1.4.1.3 Johnson Valley—Soggy Lake

Water type varies widely throughout the subbasin, ranging from sodium chloride to magnesium sulfate type. TDS concentrations also vary widely ranging from 300 to 2,000 mg/L. TDS content is highest in the

northern part of the subbasin. One public supply well has a TDS content of 1,670 mg/L. High concentrations of TDS and fluoride were found in water from wells in Johnson Valley.

5.10.1.4.1.4 Johnson Valley—Upper Johnson Valley

Groundwater sampled was sodium chloride to sodium sulfate in character with TDS concentrations as high as 3,000 mg/L. Groundwater in the subbasin has TDS and fluoride concentrations above the recommended levels for drinking water.

5.10.1.4.1.5 Bessemer Valley

Characterization of the basin is not determined.

5.10.1.4.1.6 Iron Ridge Area

Characterization of the basin is not determined.

5.10.1.4.1.7 Lower Mojave River Valley

The groundwater in the Lower Mojave River Valley Basin is mainly sodium bicarbonate in character. Sodium-calcium sulfate character occurs near Daggett and Newberry Springs. Sodium chloride, sodium-calcium chloride, and sodium chloride-sulfate characters occur east of Troy Lake. Sodium bicarbonate-chloride predominates at Afton. Total dissolved solids content ranges from 300 mg/L near Daggett to 2,000 mg/L near Newberry Springs. Data from 41 public supply wells included in the Title 22 monitoring program indicated a range of TDS from 265 mg/L to 2,370 mg/L with an average of 665 mg/L. Electrical Conductivity values were 533 µmhos near Yermo, 475 µmhos near Toomey, and 61 µmhos near Troy Lake.

5.10.1.4.1.8 Lavic Valley

Water in the southern part of the basin near Lavic Lake was sodium sulfate in character with a TDS content of 1,680 mg/L (DWR 1967; DWR 1954). Water in the northeastern part of the basin was sodium sulfate in character with a TDS content of 1,721 mg/L. Water in the northwestern part of the basin near the EPL Project alignment was calcium-sodium bicarbonate in character with a TDS content of 278 mg/L.

5.10.1.4.1.9 Broadwell Valley

Characterization of the basin is not determined.

5.10.1.4.1.10 Soda Lake Valley

Groundwater character is typically sodium chloride or sodium bicarbonate, often in combination with sulfate. Sodium bicarbonate water is more often found in the vicinity of the Mojave River Sink; whereas, sodium chloride water is found primarily near Soda Lake. Groundwater with significant sulfate content tends to be found in the eastern parts of the basin. The quality of the groundwater is rated marginal to inferior for both domestic and irrigation purposes; elevated concentrations of fluoride, boron, and TDS are present. Fluoride concentrations at or above 0.9 mg/L impair domestic consumption; average fluoride concentration in groundwater is about 3.5 mg/L, although levels as high as 33.3 mg/L have been reported. Boron concentration greater than 1.0 mg/L preclude the use of groundwater for irrigation in many parts of the basin; average concentration is about 1.3 mg/L. TDS concentrations average about 1,500 mg/L.

5.10.1.4.1.11 Kelso Valley

The groundwater at Kelso has a sodium bicarbonate sulfate character. The groundwater is suitable for all beneficial uses and has a TDS content of about 570 mg/L.

5.10.1.4.1.12 Ivanpah Valley

The character of the groundwater varies widely within the basin; however, sodium and calcium are generally the predominant cations, while bicarbonate is generally the major anion. In the vicinity of Ivanpah Lake, the character of the groundwater is sodium chloride.

5.10.1.5 Groundwater Wells and Springs

Review of the CDFW's Terrestrial Significant Habitats dataset indicates that there are no springs within one mile of any EPL Project component in California (CDFW 2020). Review of the National Hydrography Dataset indicates that there are several springs within one mile of Segment 5 and Segment 6 in Nevada (USGS 2022).

The Public Land Survey System Sections traversed by the EPL Project alignment in California wherein a water well is located are shown in Figure 5.10-3a; the density of wells within each Public Land Survey System Section is also presented.

5.10.1.6 Groundwater Management

No sustainable groundwater management plan has been adopted for groundwater resources located below the EPL Project alignment. Portions of the Upper Mojave River Valley, Lucerne Valley, Johnson Valley—Soggy Lake, Johnson Valley—Upper Johnson Valley, Bessemer Valley, Iron Ridge Area, and Lower Mojave River Valley groundwater basins are included under the Mojave Basin Area Adjudication and under the management of the Mojave Water Agency.

Water from the groundwater basins identified in Section 5.10.1.4 above may be used during construction of the EPL Project. Any such water would be obtained by SCE from commercial or municipal purveyors; no groundwater extraction wells would be developed as part of the EPL Project.

5.10.2 Regulatory Setting

Federal, State, and local regulations were reviewed for applicability to the EPL Project.

5.10.2.1 Regulatory Setting

5.10.2.1.1 Federal

5.10.2.1.1.1 Clean Water Act (33 U.S.C. § 1251 et seq.)

The purpose of the Clean Water Act (CWA) is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." A stated goal of the CWA is to eliminate discharge of pollutants into navigable waters, and is defined in Section 502(7) of the CWA and corresponding case law. Under the CWA, federal facilities have regulatory responsibilities that include preventing water pollution, obtaining discharge permits, meeting applicable water quality standards, developing risk management plans, and maintaining records.

5.10.2.1.1.1.1 Clean Water Act Section 404

Section 404 of the CWA authorizes the USACE to regulate the discharge of dredged or fill material to waters of the U.S., including wetlands (33 U.S. Code [U.S.C.] §1344). The definition of waters of the U.S. includes rivers, streams, estuaries, the territorial seas, ponds, lakes, and wetlands. Wetlands are defined as those areas "that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 Code of Federal Regulations [CFR] §328.3[b]).

The USACE issues individual, site-specific permits or general permits (i.e., Nationwide Permits [NWPs] or Regional General Permits) for such discharges. Projects that involve the discharge of dredge or fill material (e.g., soil, sediment, and other materials into waters of the U.S.) require CWA Section 404 permit authorizations from the USACE. The U.S. Environmental Protection Agency (EPA) has veto authority over the USACE's administration of the Section 404 program and may override a USACE decision with respect to permitting. Under the current USACE-administered NWP program, a project may be authorized under NWP 12 (Utility Line Activities) if it does not result in a loss of more than 0.5 acre of waters of the U.S. Permanent impacts to waters of the U.S. that are greater than 0.5 acre may require an Individual Permit.

5.10.2.1.1.1.2 Clean Water Act Section 401

Any USACE permit authorized for a proposed project will be invalid unless a project-specific Section 401 Water Quality Certification (WQC) or waiver of water quality is issued for the project. A Section 401 WQC requires a finding that the activities permitted by a federal agency will not violate water quality standards individually or cumulatively over the term of the issued USACE permit. Within California, the SWRCB and the nine RWQCBs are given the primary responsibility to control water quality. The Proposed Project is under the jurisdiction of the Lahontan and Colorado River RWQCBs; however, when multiple RWQCBs are crossed, the WQC is often issued by the SWRCB. In Nevada, the Nevada Revised Statutes (NRS) and the Nevada Administrative Code regulate surface water within the State and implement the CWA Section 401 WQC. Administration of the Section 401 WQC falls under the authority of the NDEP's Bureau of Water Quality Planning (BWQP). The BWQP may either waive, certify, or deny Section 401 WQCs.

5.10.2.1.1.1.3 Clean Water Act Section 402

The National Pollutant Discharge Elimination System (NPDES) program was established in 1972 to control discharges of pollutants from defined point sources (33 U.S.C. §1342 and 1251). Both California and Nevada administer the NPDES program within their own state. Within the State of California, the SWRCB issues both general permits and individual permits under the NPDES permit program. The SWRCB delegates much of its NPDES authority and administration to the nine RWQCBs. The Proposed Project's NPDES permits in California would be under the jurisdiction of the Lahontan and Colorado River RWQCBs. Specifically, SCE would obtain NPDES coverage under the California Construction Stormwater General Permit Order WQ 2022-0057-DWQ, which will become effective in September 2023.

The Construction General Permit will require the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP), which will have to be prepared before construction begins and kept on site throughout the construction process.

In Nevada, the NDEP Bureau of Water Pollution Control (BWPC) issues the Construction Stormwater General Permit (NVR100000) to control and reduce pollution to Waters of the State that meet the definition of waters of the U.S. The State of Nevada requires that projects disturbing 1 or more acres must obtain a Construction Stormwater General Permit. This construction permit is also required for projects that disturb less than 1 acre and are part of a larger common plan for development or sale that would ultimately disturb 1 acre or more. In addition, if NDEP determines that a project less than 1 acre in size will impact receiving waters or tributaries within a 0.25-mile radius of the project, the owner/operator of the project will also be required to obtain a Construction Stormwater General Permit. Nevada's new Construction Stormwater General Permit became effective January 5, 2015, whereby all existing

dischargers and new dischargers are required to obtain coverage under the new permit by submitting Permit Registration Documents.

The NDEP adopted the De Minimis Clean Water Discharge General Permit (NVG201000) on July 30, 2012. This permit is for de minimis discharges and may be intermittent or continuous. Its purpose is to provide timely authorization for discharges to Waters of the United States. This general permit establishes Notice of Intent requirements, water quality limitations, prohibitions, and management practices for five separate discharge categories. For each discharge, a separate permit is required. The categories include the following:

- Category 1 – Public water system emergency discharges
- Category 2 – Existing public water system supply discharges
- Category 3 – Well development, testing and maintenance/aquifer testing/water quality testing
- Category 4 – Subsurface water discharges
- Category 5 – Utility vault water discharges

This permit authorizes de minimis clean water discharges to waters of the U.S. pursuant to NRS 445A.465; this regulation prohibits the discharge of pollutants from a point source without a permit.

5.10.2.1.1.2 Section 303(d), Impaired Water Bodies and Total Maximum Daily Loads

Section 303(d) of the CWA requires states to identify waters where adopted water quality standards and beneficial uses are still unattained. These lists of prioritized impaired water bodies, known as the "303(d) lists," are submitted to the USEPA every 2 years.

The law requires the development of Total Maximum Daily Load (TMDL) to improve water quality of impaired water bodies. TMDLs are the quantities of pollutants that can be assimilated by a water body without violating water quality standards. States are developing TMDLs for impaired water bodies to maintain beneficial uses, achieve water quality objectives, and reduce the potential for future water quality degradation A TMDL must account for point and nonpoint sources as well as background (natural) sources and are implemented by allocating the total allowable pollutant loading among dischargers. The EPA defines point source pollution as any contaminant that enters the environment from an easily identified location such as a discharge pipe or drainage ditch. A nonpoint source is where a pollutant has been released into a wide area or when a specific location of a discharge or release of a contaminant cannot be identified.

5.10.2.1.2 State

5.10.2.1.2.1 Porter-Cologne Water Quality Act (California Water Code § 13000 et seq.)

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act) requires protection of water quality by appropriate designing, sizing, and construction of erosion and sediment controls. The Porter-Cologne Act established the SWRCB and divided California into nine regions, each overseen by a RWQCB. The SWRCB is the primary state agency responsible for protecting the quality of the state's surface and groundwater supplies and has delegated primary implementation authority to the nine RWQCBs. The Porter-Cologne Act assigns responsibility to the SWRCB and the nine RWQCBs for implementing CWA, including Sections 401 through 402 (see above).

The nine RWQCBs also implement CWA Section 303(d). Under Section 303(d), the RWQCBs identify streams and waters that have "Water Quality Limited Segments," or portions that do not meet water quality

standards even after point sources of pollution have installed the minimum required levels of pollution control technology. Pursuant to the CWA, the SWRCB establishes priority rankings for water on the lists and develops total maximum daily load criteria (i.e., the maximum quantity of a particular contaminant that a water body can assimilate without experiencing adverse effects) to improve water quality.

Under the Porter-Cologne Act and the NPDES, the SWRCB administers California's storm water permitting program. This program requires all projects that will disturb more than one acre of land to implement storm water BMPs to prevent discharge of sediments and storm water. The permit (General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities, Order 2009-0009-DWQ as amended by Order 2010-0014-DWQ and 2012-0006-DWQ) requires preparation of a SWPPP and implementation of BMPs, storm water sampling, and reporting.

The SWRCB and the RWQCBs are responsible for addressing dredge and fill impacts to wetlands and waterways in California to support the State goal of no net loss of wetlands. The SWRCB and the RWQCBs are responsible for the issuance of Section 401 water quality certifications for federal actions that result in dredge and fill activities in federally jurisdictional wetlands and waterways. Dredge and fill activities in non-federally jurisdictional wetlands and waterways must be covered under a waste discharge requirement (WDR) issued by the SWRCB or applicable RWQCB.

In April 2019, the SWRCB issued the State Wetland Definition and Procedures for Discharges for Dredged or Fill Materials to Waters of the State (Procedures). The Procedures became effective on May 28, 2020 but were challenged in California Superior Court. The Court found that the Board overreached their authority in implementing the Procedures related to non-federal waters of the State by not identifying the correct policy for which their authority resides. The Court found that the SWRCB has the authority to regulate all waters of the State, even non-federal waters but is currently prohibited from requiring the Procedures for waters of the State that are not waters of the U.S. until changes to the policy are made. Currently, the SWRCB has issued a public notice to clarify their authority so that the Procedures will include waters not identified as waters regulated under federal CWA. It is anticipated that the Board will adjust their policy and implementation of the Procedures to include non-federal waters of the State.

The Porter-Cologne Act requires the development and periodic review of water quality control plans (Basin Plans) that designate beneficial uses of California's major rivers and groundwater basins and establish narrative and numerical water quality objectives for those waters, provide the technical basis for determining waste discharge requirements, identify enforcement actions, and evaluate clean water grant proposals. The Basin Plans are updated every three years.

5.10.2.1.2.2 Lahontan Region Basin Plan

The EPL Project alignment falls partially within the jurisdiction of the Lahontan Regional Water Quality Control Board. The water quality objectives for the Lahontan Region include measures to reduce the potential for contaminants. The Lahontan Region Basin Plan lists restrictions on waste discharges and sediment and erosion control requirements. The Lahontan Region Basin Plan identifies the majority of issues related to water quality within the Region are a result of non-point sources. The allocation of waters within the Region to areas outside the Region are also identified. Because of the size of the Region, careful consideration between water quality and water quantity is a primary goal in the planning process for the Region.

5.10.2.1.2.3 Water Quality Control Plan for the Colorado River Basin Region

The EPL Project alignment falls partially within the jurisdiction of the Colorado River Regional Water Quality Control Board. The Water Quality Control Plan for the Colorado River Basin (Basin Plan) is

designed to preserve and enhance water quality in the Region and to protect the beneficial uses of all regional waters for the benefit of present and future generations. The Basin Plan contains the Region's beneficial uses for ground and surface waters, water quality objectives to protect beneficial uses, and implementation programs to achieve water quality objectives. The Basin Plan fulfills state and federal statutory requirements for water quality planning, thereby preserving and protecting ground and surface waters of the Colorado River Basin Region.

5.10.2.1.2.4 California Fish and Game Code § 1600-1617

California Fish and Game Code Section 1600 et seq. sets forth guidelines for the protection and conservation of fish and wildlife, including habitat. The law requires any person, state or local governmental agency, or public utility to notify CDFW before beginning an activity that would substantially modify the bank or bed of a river, stream, or lake (i.e., prior to causing any potential hydrological impacts). Refer to Section 5.4, Biological Resources, for additional information.

5.10.2.1.2.5 Nevada Revised Statutes

Pursuant to the Nevada Revised Statutes, the Nevada Department of Environmental Protection may issue general or temporary permits for the discharge of pollutants or the injection of fluids through a well (NRS 445A.475 and NRS 445A.485, respectively).

Temporary permits are issued by NDEP for discharges lasting six months (180 days) or less. The Working in Waterways Temporary Permit covers temporary working or routine maintenance in surface waters of the State such as channel clearing and minor repairs to intake structures. This permit is required before operating earthmoving equipment in any body of water.

5.10.2.2 Local

The CPUC has sole and exclusive state jurisdiction over the siting and design of the EPL Project. Pursuant to GO 131-D, Section XIV.B, "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters." Consequently, public utilities are directed to consider local regulations and consult with local agencies, but the county and cities' regulations are not applicable as the county and cities do not have jurisdiction over the EPL Project. Accordingly, the following discussion of local land use regulations is provided for informational purposes only.

5.10.2.2.1 San Bernardino County Countywide Plan

The County of San Bernardino Countywide Plan does not contain any specific goals or policies that are relevant to the EPL Project.

5.10.2.2.2 City of Hesperia General Plan

The City of Hesperia General Plan does not contain any specific goals or policies that are relevant to the EPL Project.

5.10.2.2.3 Clark County (NV) Comprehensive Master Plan

The Conservation Element of the Clark County (NV) Comprehensive Master Plan does not contain any specific goals or policies that are relevant to the EPL Project.

5.10.2.2.4 City of Boulder City (NV) Master Plan

The City of Boulder City (NV) Master Plan does not contain any specific policies that are relevant to the EPL Project.

5.10.3 Impact Questions

5.10.3.1 Impact Questions

The significance criteria for assessing the impacts to hydrology and water quality come from the CEQA Environmental Checklist. According to the CEQA Checklist, a project causes a potentially significant impact if it would:

- Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?
- Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on site or off site; substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite; create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff; or impede or redirect flood flows?
- In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?
- Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

5.10.3.2 Additional CEQA Impact Questions

There are no CPUC-identified additional CEQA impact questions.

5.10.4 Impact Analysis

5.10.4.1 Impact Analysis

5.10.4.1.1 Would the Project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

5.10.4.1.1.1 Construction

Less than Significant Impact. Construction of the EPL Project would require ground-disturbing activities that could increase soil erosion rates, potentially resulting in violating water quality standards and impacts to beneficial uses in adjacent water bodies. The EPL Project crosses erosion-prone areas and areas with potential for sedimentation. To minimize soil erosion and resulting impacts on water quality, SCE would comply with state storm water regulations and the terms of ministerial grading permits from county jurisdictions (if such permits are necessary). No waste discharge requirements are anticipated to be required for the EPL Project. SCE would apply for coverage under a General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities, Order 2009-0009-DWQ as amended by Order 2010-0014-DWQ and 2012-0006-DWQ. This general permit requires submittal of a Notice of Intent, preparation of project-specific SWPPPs and implementation of site-specific BMPs to

address material management, non-storm water discharge, sediment discharge, and erosion control to meet water quality standards.

Pursuant to the NRS, SCE will obtain from NDEP a Working in Waterways Temporary Permit to cover its work in the State. Site-specific BMPs would be developed as necessary to prevent storm water discharges during construction and could include, but are not limited to: installation of silt fencing, straw wattles, retention basins, sediment stabilization, and good site housekeeping.

Construction of the EPL Project would not contribute to the degradation of water quality within a 303(d) listed waterbody, as no surface-disturbing work under the EPL Project would occur nearer than 4 miles to a 303 (d) listed waterbody.

Materials used during construction (e.g., diesel fuel, hydraulic fluid, oils, grease, and concrete) have the potential to be transported by storm water runoff and threaten aquatic life. These materials could violate water quality standards if they come in contact with storm water and/or are transported to nearby water resources or a municipal separate storm sewer system. The general handling, storage, and disposal of potentially hazardous materials are discussed in Section 5.9, Hazards and Hazardous Materials, and specific measures to manage hazardous materials would be addressed in the SWPPPs. Further, SCE would implement BMPs and standard construction practices as addressed in Section 3.5.13 and Section 3.13, respectively. These would ensure less than significant impacts.

Wastewater would be generated by construction workers during construction of the EPL Project. However, the wastewater generated during the construction period would be contained within portable restrooms and disposed of by a licensed contractor. No wastewater would be discharged from the site.

Potential water quality impacts during construction within jurisdictional drainages would be minimized through compliance with the conditions set forth in the federal or state permits and agreements, and coordination with the resource agencies. Work within CWA wetlands and other waters may require a CWA Section 404 permit from the USACE for the placement of dredge or fill material in federally jurisdictional waters of the U.S. As such, SCE would also be required to obtain a Section 401 water quality certification from the SWRCB or applicable RWQCBs and comply with conditions of approval. Work within streams or drainages may require a 1602 Lake or Streambed Alteration Agreement from CDFW and a Working in Waterways Temporary Permit from NDEP. Obtaining permits for dredge and fill activities and compliance with the terms and conditions in these authorizations would ensure that these activities would not violate any water quality standards and would not otherwise substantially degrade surface or groundwater quality.

Earth moving activities, including vegetation removal, have the potential to create storm water runoff during rain events and violate water quality standards. With the implementation of site-specific BMPs required under the state construction storm water permit and compliance with terms and conditions of other required permits (including ministerial grading permits), the EPL Project would not violate water quality standards or applicable waste discharge requirements associated with construction activities.

With implementation of the EPL Project-specific BMPs provided in the SWPPPs and compliance with federal and state law, the EPL Project would not violate any water quality standards or waste discharge requirements and would not otherwise substantially degrade surface or ground water quality, and impacts would be less than significant.

5.10.4.1.1.2 Operations

No Impact. As presented in Chapter 3, SCE is currently performing O&M activities, including inspections,

along the transmission lines included under the EPL Project. No material changes in O&M activities are anticipated with implementation of the EPL Project, and therefore no new impacts would be realized under this criterion during operations and maintenance.

5.10.4.1.2 Would the Project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin?

5.10.4.1.2.1 Construction

Less than Significant Impact. During earth-disturbing activities, water would be used to control dust and stabilize unvegetated areas. Water for dust control would be obtained from existing surface water- and groundwater-fed supplies. It is estimated that on the order of 450 acre-feet of water may be used over the construction period; this is a conservative estimate, and actual water consumption would be substantially less due to refinements in construction scheduling during final engineering.

The consumptive use of 450 acre-feet over the construction period would not result in a substantial depletion of groundwater supplies: the annual water supply in 2010 reported by the Mojave Water Agency (MWA, which covers the western portions of Segment 1 and 2 where groundwater is managed) was 179,438 acre-feet; demand was 145,875 acre-feet. Forecast supply in 2020 is 192,339 acre-feet, with demand estimated to be 159,544 acre-feet. The MWA notes that almost all of the water use within the Region is supplied by pumped groundwater. (MWA 2014) The EPL Project's approximate 450 acre-feet of annual water consumption represents approximately 1.4 percent of the annual supply surplus, and thus would not substantially deplete groundwater supplies and would not lower the local ground water table level. Further, the short-term withdrawals of groundwater for the EPL Project would not impede the inherently long-term sustainable management of the basin.

During installation of the new inter-set structures, shallow groundwater may be encountered. In these instances, excavations would be dewatered and either discharged on-site to land or stored in Baker tanks or similar equipment prior to disposal off-site. This water may also supplement other water supplies for dust control. Groundwater dewatered from excavations and discharged to land or used for dust control would infiltrate into the existing groundwater system; during this process some groundwater would be lost to evapotranspiration, but this loss would be minor and would not substantially deplete groundwater supplies.

The new inter-set structures to be installed under the EPL Project would represent approximately 60 square feet of new impervious surface; given this small area, the EPL Project would not impede groundwater recharge or restrict infiltration to the groundwater table.

Because of the relatively small volume of groundwater that would be used during construction when compared to the existing groundwater supplies in the area; the limited volumes of dewatering waters; and the small new area of impervious surface installed under the EPL Project, the EPL Project would not impede groundwater recharge or restrict infiltration to the groundwater table, and construction-related impacts would be less than significant.

5.10.4.1.2.2 Operations

No Impact. As presented in Chapter 3, SCE is currently performing O&M activities, including inspections, along the transmission lines included under the EPL Project. No material changes in O&M activities are anticipated with implementation of the EPL Project, and therefore no new impacts would be realized under this criterion during operations and maintenance.

5.10.4.1.3 Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on- or off-site?

5.10.4.1.3.1 Construction

Less than Significant Impact. The EPL Project alignment crosses numerous ephemeral and intermittent drainages; the EPL Project would not alter the course of any drainage.

The EPL Project involves vegetation removal and the establishment of structure installation sites, pull sites, and other construction work areas, the installation of new inter-set structures, and the establishment and use of staging areas. None of the proposed spur roads are located in an ephemeral or intermittent drainage. Portions of these construction work areas may be located in or adjacent to ephemeral or intermittent drainages, or are located in areas that are prone to erosion and sedimentation. Establishment of these construction work areas may result in very small localized changes to the existing drainage patterns that would not result in a change in the drainage patterns that could result in erosion, siltation and sedimentation on or off-site.

Work within drainages would be avoided to the extent feasible. However, where work within drainages is required, SCE would implement, as appropriate, measures described in Section 3.5.11 and Section 3.13, including site-specific BMPs (e.g., silt fencing and straw wattles) to reduce the risk of an unintended release of sediments or other materials into jurisdictional waters. Where required, permits per CWA Sections 404 and 401, the Porter Cologne Act, CDFW 1602 LSAA, and NRS 445A would be obtained and all conditions of approval would be implemented including, but not limited to, returning all drainage features temporarily impacted during construction to approximate the pre-project conditions. Therefore, impacts would be less than significant during construction under this criterion.

5.10.4.1.3.2 Operations

No Impact. As presented in Chapter 3, SCE is currently performing O&M activities, including inspections, along the transmission lines included under the EPL Project. No material changes in O&M activities are anticipated with implementation of the EPL Project, and therefore no new impacts would be realized under this criterion during operations and maintenance.

5.10.4.1.4 Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

5.10.4.1.4.1 Construction

Less than Significant Impact. As described above, work associated with the EPL Project would result in a minor increase in impervious surface compared with existing conditions, and establishment of construction work areas, rehabilitation of existing access roads, and construction of permanent spur roads would result in minor changes to drainage patterns. However, the overall drainage patterns would remain unchanged and the EPL Project would not alter the course of a stream or river. The EPL Project's SWPPPs would include measures to control storm water runoff which would minimize the potential for significant alteration of drainage patterns that would result in flooding on-site or off-site. Construction of the new permanent spur roads would include design considerations to maintain or improve drainage patterns, where feasible. Through drainage design and SWPPP implementation, the EPL Project would

not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces which would substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site, and thus impacts would be less than significant.

5.10.4.1.4.2 Operations

No Impact. As presented in Chapter 3, SCE is currently performing O&M activities, including inspections, along the transmission lines included under the EPL Project. No material changes in O&M activities are anticipated with implementation of the EPL Project, and therefore no new impacts would be realized under this criterion during operations and maintenance.

5.10.4.1.5 Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?

5.10.4.1.5.1 Construction

Less than Significant Impact. The EPL Project alignment crosses intermittent and ephemeral watercourses but the courses of these would not be substantially altered. Temporary impacts on stream channels could occur during construction but these features would be returned to pre-project topography and grade and no permanent drainage patterns would occur. As previously described, the EPL Project would not substantially increase the area of impervious surfaces that could result in a substantial increase in runoff. Grading of construction work areas, rehabilitation of access roads, construction of spur roads, and construction of TSP foundations could contribute to minor increases of polluted runoff during construction. Where appropriate, areas temporarily disturbed will be restored or revegetated. These activities would be temporary, and impacts would be reduced by the implementation of site-specific BMPs identified in the SWPPPs. Because EPL Project activities would not substantially increase polluted runoff, impacts would be less than significant.

5.10.4.1.5.2 Operations

No Impact. As presented in Chapter 3, SCE is currently performing O&M activities, including inspections, along the transmission lines included under the EPL Project. No material changes in O&M activities are anticipated with implementation of the EPL Project, and therefore no new impacts would be realized under this criterion during operations and maintenance.

5.10.4.1.6 Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would impede or redirect flood flows?

5.10.4.1.6.1 Construction

Less than Significant Impact. No new inter-set structures will be located within an intermittent feature, and no new inter-set structures will be located within a floodplain. These structures would have a small footprint and cross-section that would not significantly impede or redirect flood flows. If flooding is threatened during the construction period, equipment and personnel would be removed from floodplain areas. Therefore, any impacts would be less than significant.

5.10.4.1.6.2 Operations

No Impact. Operation and maintenance activities, that exist today, would not change as a result of the EPL Project. Any additional structures installed during the operations phase of the EPL Project would be analogous to those installed during the Construction phase, and as such would not alter drainage patterns or impede or redirect flood flows. Therefore, no impacts would occur during operation of the EPL Project under this criterion.

5.10.4.1.7 Would the Project, in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

5.10.4.1.7.1 Construction

Less than Significant Impact. The EPL Project alignment is not located within a tsunami zone and there are no large bodies of water that could result in a seiche within the vicinity of the alignment. No work under the EPL Project would occur in a floodplain. In the unlikely event of flooding or threatened flooding in non-flood hazard areas, construction crews would evacuate in accordance to established evacuation plans and routes. Therefore, construction equipment and materials would not be subject to inundation, and there would be less than significant impacts under this criterion.

5.10.4.1.7.2 Operations

No Impact. The EPL Project alignment is not located in a tsunami or seiche zone. Less than 1 mile of the EPL Project alignment crosses identified flood hazard areas; these areas could be inundated during flooding. In the unlikely event of flooding or threatened flooding, O&M crews (if in this area at the time) would evacuate and remove all O&M related equipment and materials in accordance with established evacuation plans and routes. No structures would be installed in these flood hazard areas. Because operation and maintenance activities, that exist today, would not change as a result of the EPL Project, no impacts would be realized under this criterion.

5.10.4.1.8 Would the Project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

5.10.4.1.8.1 Construction

No Impact. As stated above, construction of the EPL Project would require that SCE obtain a CWA Section 401 water quality certification from either the SWRCB or applicable RWQCBs. Receipt of this certification and compliance with any conditions of approval would ensure that the EPL Project does not conflict with any of the applicable Water Quality Control Plans.

No sustainable groundwater management plan has been developed for the areas overlain by the EPL Project alignment. This notwithstanding, the DWR has developed regulations which define six "Sustainability Indicators." These indicators must be avoided for a groundwater basin to be considered sustainable:

- Significant and unreasonable reductions in groundwater levels
- Significant and unreasonable reductions in groundwater storage
- Significant and unreasonable land subsidence
- Significant and unreasonable reductions in groundwater quality
- Significant and unreasonable reductions in groundwater-surface water interaction

- Significant and unreasonable seawater intrusion

The EPL Project's small-volume, short-duration use of water during construction would not result in the chronic lowering of groundwater levels, in the reduction of groundwater storage, in land subsidence, in the degradation of water quality, in the depletion of interconnected surface water, or in any seawater intrusion. Therefore, no impacts would be realized under this criterion.

5.10.4.1.8.2 Operations

No Impact. As presented in Chapter 3, SCE is currently performing O&M activities, including inspections, along the transmission lines included under the EPL Project. No material changes in O&M activities are anticipated with implementation of the EPL Project, and therefore no new impacts would be realized under this criterion during operations and maintenance.

5.10.4.2 Hydrostatic Testing

Hydrostatic testing is not included under the EPL Project.

5.10.4.3 Water Quality Impacts

Impacts to surface water quality are addressed in the discussions in Section 5.10.4.1 above.

5.10.4.4 Impermeable Surfaces

A description of increased run-off and potential impacts on groundwater recharge due to construction of impermeable surfaces is provided in the discussions in Section 5.10.4.1. Approximately 180 square feet of new impermeable surfaces will be created as a result of the project.[22]

5.10.4.5 Waterbody Crossings

The waterbodies to be crossed under the EPL Project are addressed in Section 5.10.1.1. Along the existing access road network, these waterbodies, where crossed, are and will be crossed at-grade. The waterbodies cannot be avoided. No additional work areas or staging areas will be required at waterbody or wetland crossings. No dewatering or water diversions will be required during construction. The restoration methods to be employed in the areas near waterbody crossings are addressed in Section 5.4.

5.10.4.6 Groundwater Impacts

The EPL Project's consistency with applicable sustainable groundwater management plans is presented in Section 5.10.4.1.8.

5.10.5 CPUC Draft Environmental Measures

There are no CPUC Draft Environmental Measures identified for the Hydrology and Water Quality resource area.

[22] Impermeable acreage calculated to be the footprint of the new inter-set structures to be installed under the EPL Project; largest diameter for each type as presented in Table 3.3-2 used in calculation.

Legend

- Substation
- Segment 1
- Segment 2
- Segment 3
- Segment 4
- Segment 5
- Segment 6
- County Boundary
- NHD Flowline

NOTES:
Sources: https://prd-tnm.s3.amazonaws.com/index.html?prefix=StagedProducts/Hydrography/NHD/State/GDB/

N

0 15 30
Miles

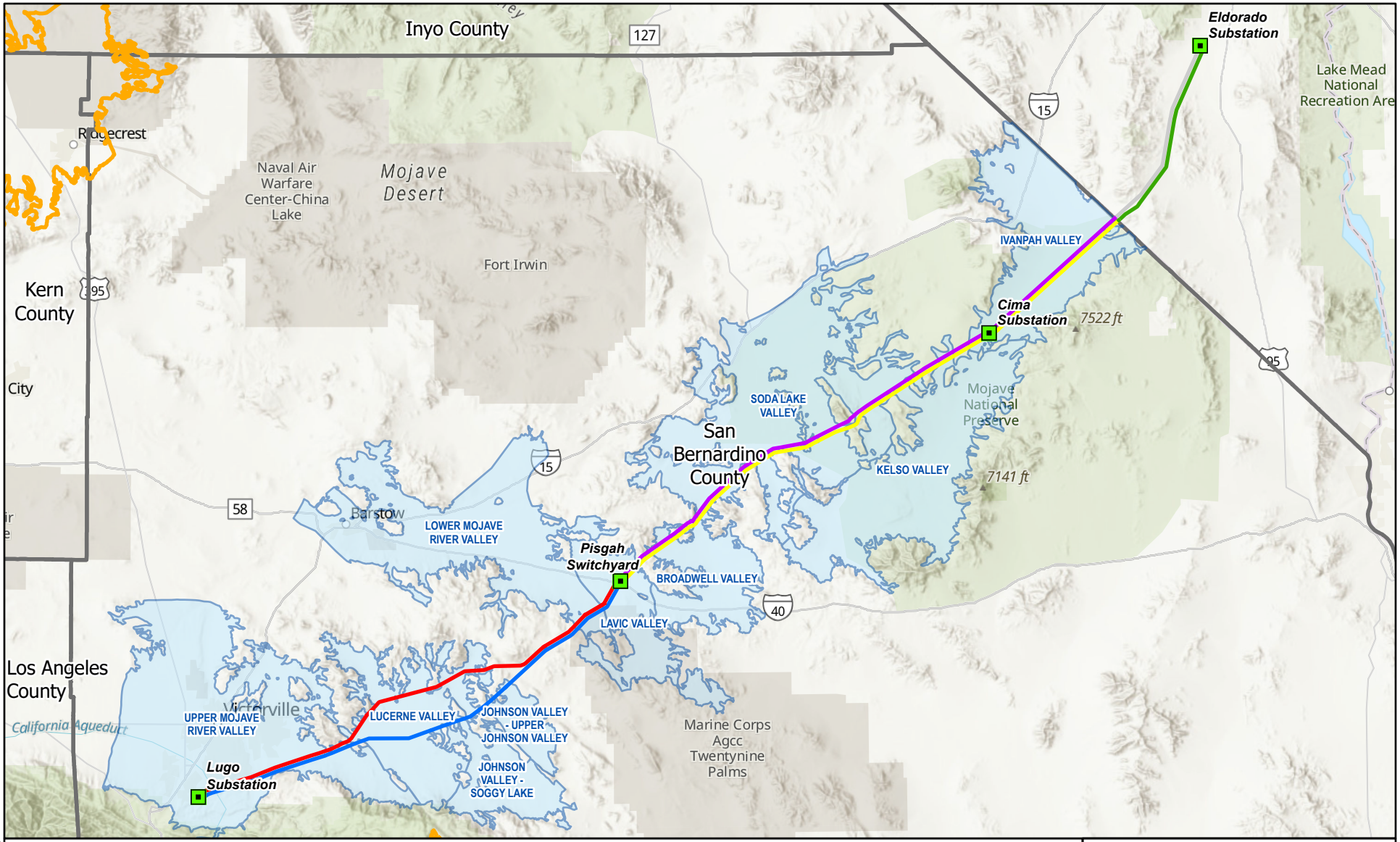
ELDORADO-PISGAH-LUGO 220 kV PROJECT

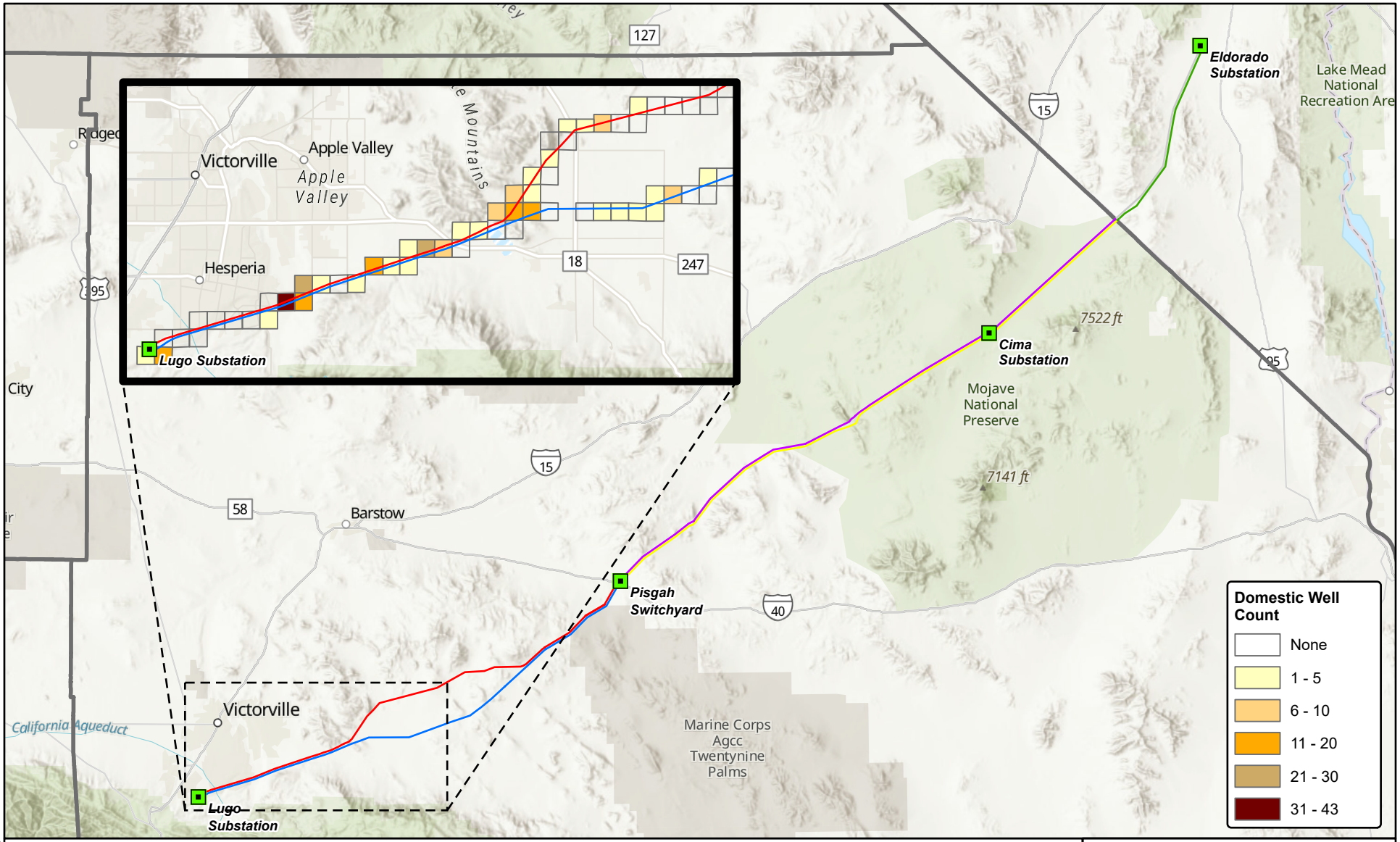
PERENNIAL, INTERMITTENT, AND EPHEMERAL WATERBODIES

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.10-1

Folder: T:_ENV\SCE\SCE_TLLR\ArcGIS_Pro\


Inyo County
Eldorado Substation
Lake Mead National Recreation Are
Ridgecrest
Naval Air Warfare Center-China Lake
Mojave Desert
Fort Irwin
IVANPAH VALLEY
Kern County
Cima Substation
7522 ft
SODA LAKE VALLEY
Mojave National Preserve
San Bernardino County
KELSO VALLEY
7141 ft
Barstow
LOWER MOJAVE RIVER VALLEY
Pisgah Switchyard
BROADWELL VALLEY
LAVIC VALLEY
Los Angeles County
Victorville
UPPER MOJAVE RIVER VALLEY
LUCERNE VALLEY
JOHNSON VALLEY - UPPER JOHNSON VALLEY
JOHNSON VALLEY - SOGGY LAKE
Lugo Substation
California Aqueduct
Marine Corps Agcc Twentynine Palms
Legend
Substation
Segment 1
Segment 2
Segment 3
Segment 4
Segment 5
Segment 6
County Boundary
Groundwater Sustainability Agency
Groundwater Basin
NOTES:
Sources: https://services1.arcgis.com/lDFzr3JyGEn5Eymu/ArcGIS/rest/services/CA_GroundwaterSustainabilityAgencies/FeatureServer; https://gis.water.ca.gov/arcgis/rest/services/Geoscientific/i08_B118_CA_GroundwaterBasins/FeatureServer
0
15
30
Miles
N
ELDORADO-PISGAH-LUGO 220 kV PROJECT
GROUNDWATER BASINS AND AQUIFERS
SOUTHERN CALIFORNIA EDISON
ARCADIS
FIGURE 5.10-2
Folder: T:_ENV\SCE\SCE_TLLR\ArcGIS_Pro\



Legend

- Substation
- Segment 1
- Segment 2
- Segment 3
- Segment 4
- Segment 5
- Segment 6
- County Boundary

NOTES:
Sources: https://gis.water.ca.gov/arcgis/rest/services/Environment/i07_WellCompletionReports/FeatureServer

0 15 30
Miles

N

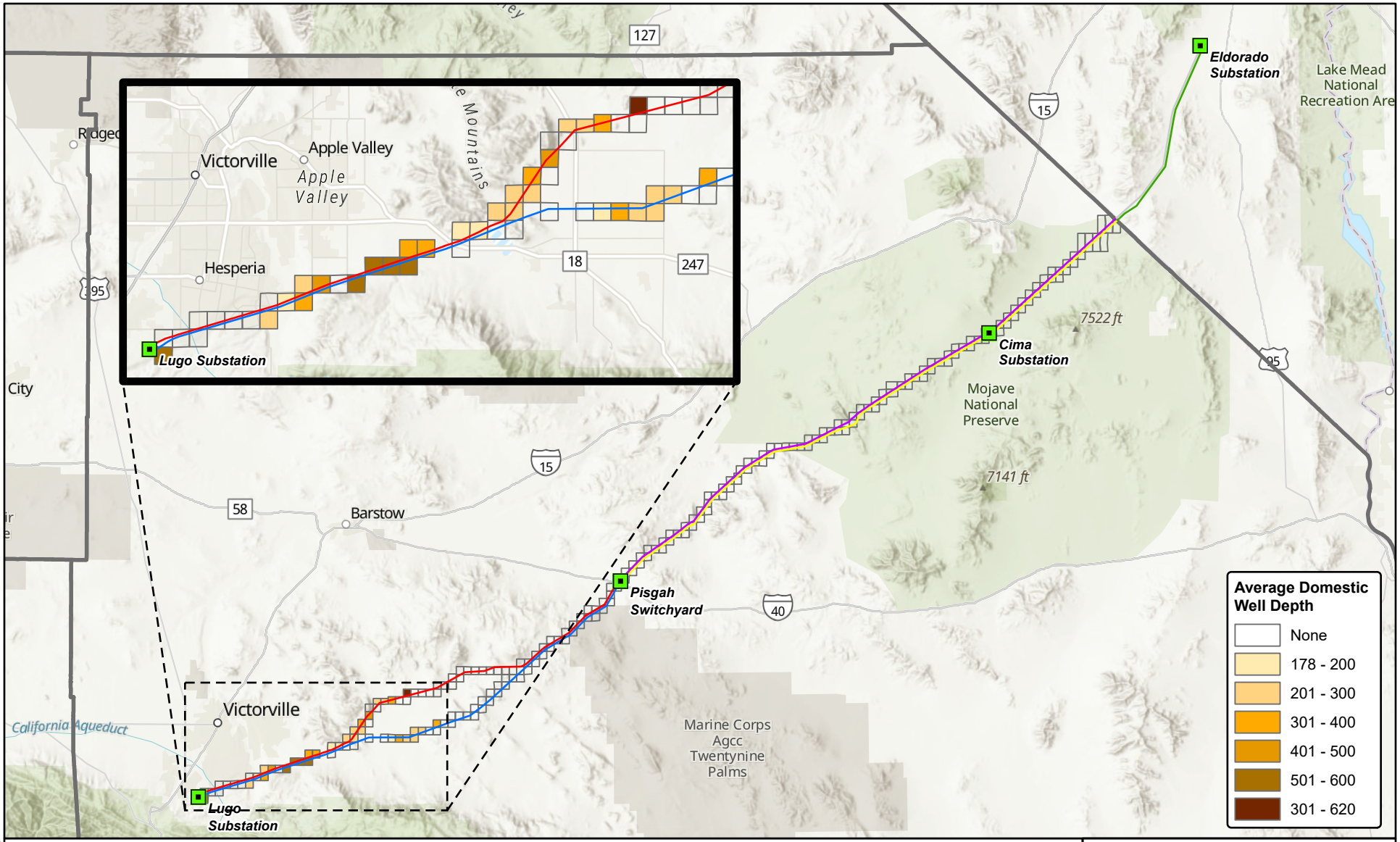
ELDORADO-PISGAH-LUGO 220 kV PROJECT

GROUNDWATER WELLS - DOMESTIC WELL COUNT PER SECTION

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.10-3a

Folder: T:_ENV\SCE\SCE_TLLR\ArcGIS_Pro\



Legend

- Substation
- Segment 1
- Segment 2
- Segment 3
- Segment 4
- Segment 5
- Segment 6
- County Boundary

NOTES:
Sources: https://gis.water.ca.gov/arcgis/rest/services/Environment/i07_WellCompletionReports/FeatureServer

0 15 30
Miles

N

ELDORADO-PISGAH-LUGO 220 kV PROJECT

GROUNDWATER WELLS - DOMESTIC WELL DEPTH PER SECTION

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.10-3b

Folder: T:_ENV\SCE\SCE_TLLR\ArcGIS_Pro\

5.11 Land Use and Planning

This Section of the PEA discusses the existing land use within the vicinity of the EPL Project and the potential impacts to existing land use as a result of construction and operation of the EPL Project. For purposes of this section, Project Area is defined as the locations where work described in Chapter 3—Project Description would be performed. Figure 5.11-1 shows the designated land use and zoning in the area of the EPL Project.

5.11.1 Environmental Setting

5.11.1.1 Land Use

The existing land use along the EPL Project alignment is primarily open space, with scattered rural residences and agriculture. The western end of the EPL Project alignment is located within the City of Hesperia; land uses adjacent to the alignment in the City are predominately residential. The eastern end of the EPL Project alignment is located with the City of Boulder City (NV); the land use within the City where work would occur is open space.

The EPL Project alignment is located in the following communities:

- Segments 1 and 2, San Bernardino County: City of Hesperia and Lucerne Valley Census Designated Place
- Segments 5 and 6, Clark County (NV): the City of Boulder City (NV)

The existing transmission lines included under the EPL Project are located in and adjacent to these communities and adjacent to scattered rural residences outside of communities.

Mining activities are found at the eastern end of Segments 1 and 2. The alignment is located proximate to the northwest boundary of the Marine Corps Air Ground Combat Center, Twentynine Palms. Renewable energy development is present at the eastern end of Segments 5 and 6.

The majority of the EPL Project alignment is located on lands managed by the BLM or the NPS.

5.11.1.2 Special Land Uses

5.11.1.2.1 Lands Administered by Federal, State, or Local Agencies, or Private Conservation Organizations

5.11.1.2.1.1 Bureau of Land Management, Desert Renewable Energy Conservation Plan, Land Use Plan Amendment Designations

Portions of the EPL Project are located on lands managed per their designation in the Desert Renewable Energy Conservation Plan Land Use Plan Amendment (DRECP LUPA). The DRECP LUPA establishes Conservation and Management Actions (CMAs) that designate allowable and non-allowable actions for siting, design, pre-construction, construction, maintenance, implementation, operation, and decommissioning activities on BLM land.

5.11.1.2.1.1.1 <u>Special Recreation Management Areas</u>

Special Recreation Management Areas (SRMAs) are high-priority areas for outdoor recreation opportunities, as defined in the BLM Land Use Planning Handbook. SRMAs help the BLM direct recreation program priorities toward areas with high resource values, high levels of public concern, or significant amounts of recreational activity. Segments 1 and 2 of the EPL Project alignment cross the Stoddard-Johnson SRMA.

5.11.1.2.1.1.2 Extensive Recreation Management Areas

Extensive Recreation Management Areas (ERMAs) are BLM administrative units that require specific management consideration to address recreation use and demand. These areas are managed by the BLM to support and sustain principal recreation activities and associated qualities and conditions. Recreation management actions within an ERMA are limited to only those of a custodial nature. A portion of Segments 3 and 4 of the EPL Project alignment is located on the southern boundary of the Crucero Valley ERMA; portions of Segments 5 and 6 are located in the Southern Nevada ERMA.

5.11.1.2.1.1.3 California Desert National Conservation Lands

The LUPA identifies California Desert National Conservation Lands, in accordance with the Omnibus Public Land Management Act of 2009 (Omnibus Act), which are nationally significant landscapes within the CDCA with outstanding cultural, ecological, and scientific values. The LUPA also establishes CMAs to conserve, protect, and restore these landscapes. Portions of all Segments of the EPL Project alignment cross California Desert National Conservation Lands.

5.11.1.2.1.1.4 Areas of Critical Environmental Concern

The EPL Project alignment crosses a number of BLM-designated Area of Critical Environmental Concern (ACECs). These are presented below in geographic order from west to east.

Granite Mountain Corridor. The Granite Mountain Corridor ACEC is a wildlife corridor linkage area sandwiched between Lucerne Valley and Apple Valley and includes Granite Mountain. The ACEC has been established to provide critical links for wildlife populations to the north and south of this linkage area and to protect biological values, including habitat quality, populations of sensitive species, and landscape connectivity while providing for compatible public uses. Segments 1 and 2 of the EPL Project alignment cross the Granite Mountain Corridor ACEC.

Ord-Rodman ACEC. The Ord-Rodman ACEC provides high density desert tortoise habitat, encompasses designated desert tortoise critical habitat, and provides critical tortoise habitat linkage. Management of the ACEC is prioritized for tortoise conservation and recovery until which time the tortoise may be delisted as per criteria given in the Recovery Plan. The area is managed in accordance with the Desert Tortoise Recovery Plan and to protect biological values, including habitat quality, populations of sensitive species, and landscape connectivity while providing for compatible public uses. Segment 1 of the EPL Project alignment crosses the Ord-Rodman ACEC.

Upper Johnson Valley Yucca Rings. The Upper Johnson Valley Yucca Rings ACEC has been established to provide protection of an Unusual Plant Assemblage; the yucca rings present within the ACEC are the largest and oldest Mojave Yucca rings known, with an estimated age up to 2,250 years. The uniqueness, high research value, and susceptibility to damage from intensive recreational uses are the principal reasons for designation. The goal of the ACEC is to increase protection of sensitive biological resources while continuing use of lands for compatible recreational opportunities. Segment 2 crosses the Upper Johnson Valley Yucca Rings ACEC.

Pisgah Research Natural Area ACEC. The Pisgah Research Natural Area ACEC provides high density desert tortoise habitat and encompasses designated desert tortoise critical habitat. This area provides regionally important tortoise habitat linkage which provides landscape connectivity. Relevant biological resources including wildlife and plant assemblages. The area is critical for bighorn sheep, golden eagles, desert tortoise, prairie falcons, Mojave fringed-toed lizards and several other species. Additionally, numerous rare and sensitive plants have major populations within the ACEC. The ACEC is managed to

protect biological values, including habitat quality, populations of sensitive species, and landscape connectivity while providing for compatible public uses. Segments 3 and 4 of the EPL Project alignment crosses the Pisgah Research Natural Area ACEC.

Cady Mountains Wilderness Study Area ACEC. The Cady Mountains Wilderness Study Area ACEC provides regional habitat connection for bighorn sheep. The ACEC contains 292 acres of lands managed to protect wilderness character. The ACEC is managed to provide for landscape connectivity while providing for compatible public uses. Segment 3 and 4 of the EPL Project alignment are located along the southern boundary of the Cady Mountains Wilderness Study Area ACEC.

Bristol Mountains ACEC. The Bristol Mountains ACEC serves as a contiguous conservation area which encompasses a transition zone between both Mojave and Sonoran/Colorado Desert ecosystems. The area has some of the best tortoise habitat in the southeast Mojave Desert, and has critical wildlife movement corridors that maintain connections for regional metapopulations. These lands are within the Mojave Trails National Monument. The ACEC also contains prehistoric trails and evidence of trading, habitation, and migration of various Native American groups. The ACEC is managed to protect biological values, including habitat quality, populations of sensitive species, and landscape connectivity while providing for compatible public uses. Segments 3 and 4 of the EPL Project alignment crosses the far northwest corner of the Bristol Mountains ACEC.

Piute Eldorado ACEC. The Piute/Eldorado ACEC is located in the Piute and Eldorado valleys between Boulder City (NV) and the Nevada/California stateline in Clark County (NV), Nevada. The ACEC consists of approximately 329,440 acres. The BLM designated the Piute Eldorado Valley ACEC to preserve critical habitat for the Mojave desert tortoise. Although critical habitat for the tortoise is the resource value that supported the original ACEC designation, other sensitive species—both plants and animals—benefit from the designation. These include the rosy two-toned penstemon, desert bighorn sheep, and other species that have state, county, or Federal special status. Segments 5 and 6 cross the Piute Eldorado ACEC.

5.11.1.2.1.1.5 Bureau of Land Management, General Public Lands

The EPL Project alignment crosses lands designated as General Public Lands; these are BLM-administered lands that do not have a specific land allocation or designation.

5.11.1.2.1.1.6 Bureau of Land Management, Development Focus Areas

The EPL Project alignment in Segment 2 crosses lands designated as Development Focus Areas; these represent areas within which the activities associated with solar, wind, and geothermal development, operation, and decommissioning will be allowed, streamlined and incentivized under the DRECP. No work would occur in a Development Focus Area.

5.11.1.2.1.1.7 Wilderness Areas

No portion of the EPL Project alignment traverses a BLM Wilderness Area. The western portion of Segment 4 serves as the northern boundary of the Kelso Dunes Wilderness, and the central portion of Segment 6 serves as the norther boundary of the Wee Thump Wilderness.

5.11.1.2.1.1.8 Mojave Trails National Monument

The Mojave Trails National Monument is a national monument located between Joshua Tree National Park and the Mojave National Preserve along Route 66 in San Bernardino County. The Mojave Trails

National Monument is managed by the BLM and covers approximately 965,000 acres. A portion of Segments 3 and 4 span the Mojave Trails National Monument.

5.11.1.2.1.2 National Park Service, Mojave National Preserve

The central and eastern portions of Segments 3 and 4 are located within the Mojave National Preserve. The California Desert Protection Act of 1994 established the Mojave National Preserve. Section 511, Utility Rights of Way, of the Act states, in part:

> (a)(1) Nothing in this title shall have the effect of terminating any validly issued right-of-way or customary operation, maintenance, repair, and replacement activities in such right-of-way, issued, granted, or permitted to Southern California Edison Company, its successors or assigns, which is located on lands included in the Mojave National Preserve, but outside lands designated as wilderness under section 601(a)(3). Such activities shall be conducted in a manner which will minimize the impact on preserve resources.
>
> (2) Nothing in this title shall have the effect of prohibiting the upgrading of an existing electrical transmission line for the purpose of increasing the capacity of such transmission line in the Southern California Edison Company validly issued Eldorado-Lugo Transmission Line right-of-way and Mojave-Lugo Transmission Line right-of-way..."

5.11.1.2.1.3 Military Lands

No portion of the EPL Project alignment is located on military lands.

5.11.1.2.1.4 State Land Use Designations

The EPL Project alignment does not cross state lands with a special land use designation.

5.11.1.2.1.5 Local Land Use Designations

The EPL Project alignment does not cross local government lands with a special land use designation.

5.11.1.2.1.6 Private Conservation Organizations

Portions of the EPL Project alignment are located on land owned by a private conservation organization.

5.11.1.2.2 Designated Coastal Zone Management Areas

No portion of the EPL Project alignment is located in a designated coastal zone management area.

5.11.1.2.3 Designated or Proposed Candidate National or State Wild and Scenic Rivers

No portion of the EPL Project alignment crosses or is located proximate to a designated or proposed candidate National or State Wild and Scenic River.

5.11.1.2.4 National Landmarks

No portion of the EPL Project alignment is located on or proximate to a National Historic Landmark.

5.11.1.3 Habitat Conservation Plan

The EPL Project alignment does not overlap an area addressed under a habitat conservation plan.

5.11.2 Regulatory Setting

Federal, State, and local regulations were reviewed for applicability to the EPL Project.

5.11.2.1 Regulatory Setting

5.11.2.1.1 Federal

5.11.2.1.1.1 Federal Land Policy and Management Act

Under the FLPMA, Federal land management agencies are required to acknowledge local plans and participation. Title 43, United States Code Annotated (USCA) Section 1712(c)(9) states the Secretary shall:

> "to the extent consistent with the laws governing the administration of the public lands, coordinate the land use inventory, planning, and management activities of or for such lands with the land use planning and management programs of other Federal departments and agencies and of the States and local governments within which the lands are located. … In implementing this directive, the Secretary shall, to the extent he finds practical, keep apprised of State, local and tribal land use plans; assure that consideration is given to those State, local and tribal plans that are germane to the development of land use plans for public lands, assist in resolving to the extent practical, inconsistencies between Federal and non-Federal Government plans, and shall provide for meaningful public involvement of State and local government officials … in the development of land use programs, land use regulations, and land use decisions for public lands. … Land use plans of the Secretary under this section shall be consistent with the State and local plans to the maximum extent he finds consistent with Federal law and the purposes of this Act."

5.11.2.1.1.2 Desert Renewable Energy Conservation Plan, Land Use Plan Amendment

The DRECP LUPA amends the California Desert Conservation Area (CDCA) Plan and Bishop Resource Management Plan (BRMP). The goal of the DRECP is to "provide a streamlined process for the development of utility-scale renewable energy generation and transmission consistent with federal and state renewable energy targets and policies, while simultaneously providing for the long-term conservation and management of Special Status Species and vegetation types as well as other physical, cultural, scenic and social resources within the DRECP Plan Area through the use of with durable regulatory mechanisms." (BLM 2016) The DRECP LUPA identifies specific Conservation and Management Actions (CMAs) for lands identified as California Desert National Conservation Lands, ACECs, Wildlife Allocations, SRMAs, ERMAs, DFAs, and GPLs. These CMAs are analogous to the multiple-use classes (MUCs) used in previous BLM land use management documents.

5.11.2.1.1.3 Las Vegas Field Office Resource Management Plan

The Las Vegas Resource Management Plan (RMP) provides a comprehensive framework for managing approximately 3.3 million acres of public lands administered by the Las Vegas Field Office of the BLM. The RMP guides the management of the public land resources for portions of Clark County (NV) and Southern Nye Counties southern Nevada. Significant resources and program emphases in the plan include: threatened and endangered species; land disposal actions, wilderness management, wildlife habitat, special status species, riparian areas, forestry and vegetative products, livestock grazing, wild horses and burros, air, soil, water, fire, land acquisition priorities, hazardous materials management, rights-of way, cultural resources, recreation, utility corridors, and locatable, saleable and leasable minerals.

5.11.2.1.2 State

5.11.2.1.2.1 California Public Utilities Commission

Pursuant to CPUC GO 131-D, the CPUC has sole and exclusive jurisdiction over the siting and design of electric power line projects, distribution lines, substations, or electric facilities constructed by public

utilities in the State of California. Under CEQA, the CPUC is the Lead Agency with respect to such EPL Project elements within the State of California. SCE is required to comply with GO 131-D and is seeking a CPCN from the CPUC for the EPL Project.

5.11.2.1.2.2 State Lands Commission

The EPL Project crosses parcels owned by the State of California and managed by the State Lands Commission. The parcels managed by the State Lands Commission are "school lands." The Commission's Strategic Plan, 2016-2020 notes these lands are:

> "...what remain of the nearly 5.5 million acres throughout the State that Congress granted to California in 1853 to benefit public education. School lands were placed into a statutory trust in 1984 when the Legislature enacted the School Land Bank Act (Act) and created the School Land Bank Fund. The Commission is the trustee of the Fund. Today these lands support common schools and the revenue, by statute, supports the State Teachers' Retirement System. Over half of school lands are located in the California Desert. The Act states that school lands and attendant interests are to be proactively managed and enhanced to provide an economic base in support of public education. The Act further requires the Commission to take all action necessary to fully develop school lands, indemnity interests, and attendant mineral interests into a permanent and productive resource base." (California State Lands Commission 2015)

No specific management plan for these State-owned parcels has been identified.

5.11.2.1.3 Local

The CPUC has sole and exclusive state jurisdiction over the siting and design of the EPL Project. Pursuant to GO 131-D, Section XIV.B, "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters." Consequently, public utilities are directed to consider local regulations and consult with local agencies, but the county and cities' regulations are not applicable as the county and cities do not have jurisdiction over the EPL Project. Accordingly, the following discussion of local land use regulations is provided for informational purposes only.

5.11.2.1.3.1 San Bernardino County General Plan, Land Use Element

The Land Use Element is a guide for the County of San Bernardino's future development. It designates the distribution and general location of land uses, such as residential, retail, industrial, open space, recreation, and public areas. The Land Use Element also addresses the permitted density and intensity of the various land use designations.

San Bernardino County and the City of Hesperia use a "one-map approach" that permits the use of a single map showing both General Plan land use designations and zoning classifications. The one-map approach assures that there will always be land use consistency between the General Plan and zoning ordinance. The designations for properties traversed by the EPL Project alignment are presented in Table 5.11-1.

Table 5.11-1: Land Use and Zoning Designations

Jurisdiction	General Plan Land Use Designation	Zoning
San Bernardino County	AG (1 unit per 10 acres) AG-40 (1 unit per 40 acres) FW (Floodway) RC (Resource Conservation) RL (Rural Living) RL-5 (Rural Living, 1 unit per 5 acre lot) RL-10 (Rural Living, 1 unit per 10 acre lot) RS-1 (Single Residential) SD (Special Development)	San Bernardino County utilizes a "one-map approach" that combines both General Plan land use designations and zoning classifications.
City of Hesperia	UC (Utility Corridor)	The City of Hesperia utilizes a "one-map approach" that combines both General Plan land use designations and zoning classifications.
Clark County (NV)	OL (Open Lands)	R-U (Rural Urban)
City of Boulder City (NV)	OLC (Open Lands)	GO (Government Open Space) ER (Energy Resource)

5.11.2.1.3.2 San Bernardino County, Code of Ordinances

Division 2: Land Use Zoning Districts and Allowed Land Uses of the Code of Ordinances establishes allowable uses for land use zoning designations. For all land use zoning designations, the Code notes that "transmission lines...are regulated and approved by the Public Utilities Commission. See alternate review procedures in §85.02.050, Alternate Review Procedures."

Section 85.02.050, Alternate Review Procedures of the Code of Ordinances states in relevant part:

> "Unless preempted by State or Federal Law, the specific land uses listed in the land use tables in Chapters 82.03 through 82.22 shall be allowed without a Conditional Use Permit when the following alternate review procedures have been completed to the satisfaction of the Director.
>
> ...
>
> (b) Acceptable Alternate Procedures. Projects approved by the following agencies shall qualify as the alternate review authority:
>
> ...
>
> 5) Projects approved by the State Public Utilities Commission."

5.11.2.1.3.3 City of Hesperia General Plan 2010, Land Use Element

The Land Use Element of the General Plan describes the general location, type, and intensity of development and identifies the distribution of land uses throughout the City of Hesperia. Land uses such as residential, commercial, industrial, open space, and public uses are planned to meet the needs of residents, support economic/fiscal goals, and provide for the orderly development of the City of Hesperia. The EPL Project alignment is located wholly on lands with a Utilities Corridor land use designation.

5.11.2.1.3.4 City of Hesperia Municipal Code

Title 16: Development Code of the City of Hesperia's Municipal Code implements the City's General Plan. The EPL Project alignment is located wholly on lands zoned Utilities Corridor.

5.11.2.1.3.5 Clark County (NV) Comprehensive Master Plan

The Clark County (NV) Comprehensive Master Plan is a long-term, general policy plan for the physical development of unincorporated Clark County (NV). Lands overlain by the EPL Project alignment in unincorporated Clark County (NV) are designated OL (Open Lands).

5.11.2.1.3.6 Clark County (NV) Code of Ordinances

Title 30, Unified Development Code, identifies allowable uses for land use zoning designations. "Public Utility Structures, including 34.5 kv or greater transmission lines" are listed as a Conditional Use or Special Use on lands zoned R-U.

5.11.2.1.3.7 City of Boulder City (NV) Master Plan

The City of Boulder City (NV) Master Plan identifies the lands over which the EPL Project alignment is routed as Man-E (Manufacturing Energy) and OLC (Open Lands).

5.11.2.1.3.8 City of Boulder Code of Ordinances

The City of Boulder City (NV) Zoning Map identifies the lands over which the EPL Project alignment is routed as GO (Government Open Space). The Code contains the following of relevance:

> 11-16-2. - PERMITTED USES.
>
> The uses in the "G" Zone shall be for the following purposes, unless further restricted per section 11-16-3:
>
> A. Public uses such as facilities for police, fire and general government functions; electrical distribution facilities; water, sewer and drainage system facilities; communication facilities; waste disposal facilities; schools; libraries; cemeteries; scenic drives; dedicated and/or designated park areas and recreational uses; open space and/or conservation areas; and similar related uses.
>
> B. Compatible quasi-public uses.
>
> …
>
> 11-20-2. - GENERAL PROVISIONS RELATING TO USES.
>
> A. Uses Not Listed. The community development director may make a determination as to whether any use not listed in this title would be a permitted or conditional use in a particular zone.

5.11.3 Impact Questions

5.11.3.1 Impact Questions

The significance criteria for assessing the impacts to land use and planning are derived from the CEQA Environmental Checklist. According to the CEQA Checklist, a project causes a potentially significant impact if it would:

- Physically divide an established community
- Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect

5.11.3.2 Additional CEQA Impact Questions

There are no CPUC-identified additional CEQA impact questions.

5.11.4 Impact Analysis

5.11.4.1 Impact Analysis

5.11.4.1.1 Would the project physically divide an established community?

5.11.4.1.1.1 Construction

No Impact. The EPL Project is located largely in rural areas where the land is undeveloped and is generally described as open space. The existing transmission lines included under the EPL Project are currently, and have historically been, located in and adjacent to established communities along the alignment. The work proposed under the EPL Project would be located within, or immediately proximate to, the existing alignment, and thus would also be present in these existing communities. The inter-set structures and new conductor to be installed would not incrementally contribute to any physical division of an established community beyond that which is already occurring due to the existing EPL Project infrastructure. Therefore, no impacts would occur under this criterion during construction.

5.11.4.1.1.2 Operations

No Impact. As presented in Chapter 3, SCE is currently performing O&M activities, including inspections, along the transmission lines included under the EPL Project. No material changes in O&M activities are anticipated with implementation of the EPL Project, and therefore no new impacts would be realized under this criterion during operations and maintenance.

5.11.4.1.2 Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

5.11.4.1.2.1 Construction

No Impact. The EPL Project would be located primarily within the existing ROW located on Federal, State, and private lands within San Bernardino County and in the City of Hesperia, and in Clark County (NV).

For all General Plan and Zoning designations crossed by the EPL Project alignment in San Bernardino County, the Code of Ordinances notes that "…[u]nless preempted by State or Federal Law, the specific land uses listed in the land use tables in Chapters 82.03 through 82.22 shall be allowed without a Conditional Use Permit" when one of the alternate review procedures described in Section 85.02.050 is followed. Project approval by the CPUC is one of the alternative review procedures. Therefore, review and approval of the EPL Project by the CPUC would ensure that the EPL Project does not conflict with the County General Plan or the Code of Ordinances.

Within the City of Hesperia, work associated with the EPL Project would be performed in an area zoned as, and designated in the City's General Plan 2010 as, a Utility Corridor. Work proposed under the EPL Project are not prohibited within a Utility Corridor in the General Plan 2010 or in the Code of Ordinances.

There are no identified land use constraints on State lands crossed by the EPL Project alignment.

Within Clark County (NV) and the City of Boulder City (NV), work associated with the EPL Project would be performed within an identified utility corridor, and would be permitted as necessary by Clark County (NV) and the City of Boulder City (NV). Therefore, the EPL Project would not conflict with the County's Comprehensive Master Plan or the Code of Ordinances, or the City's Master Plan or Code of Ordinances.

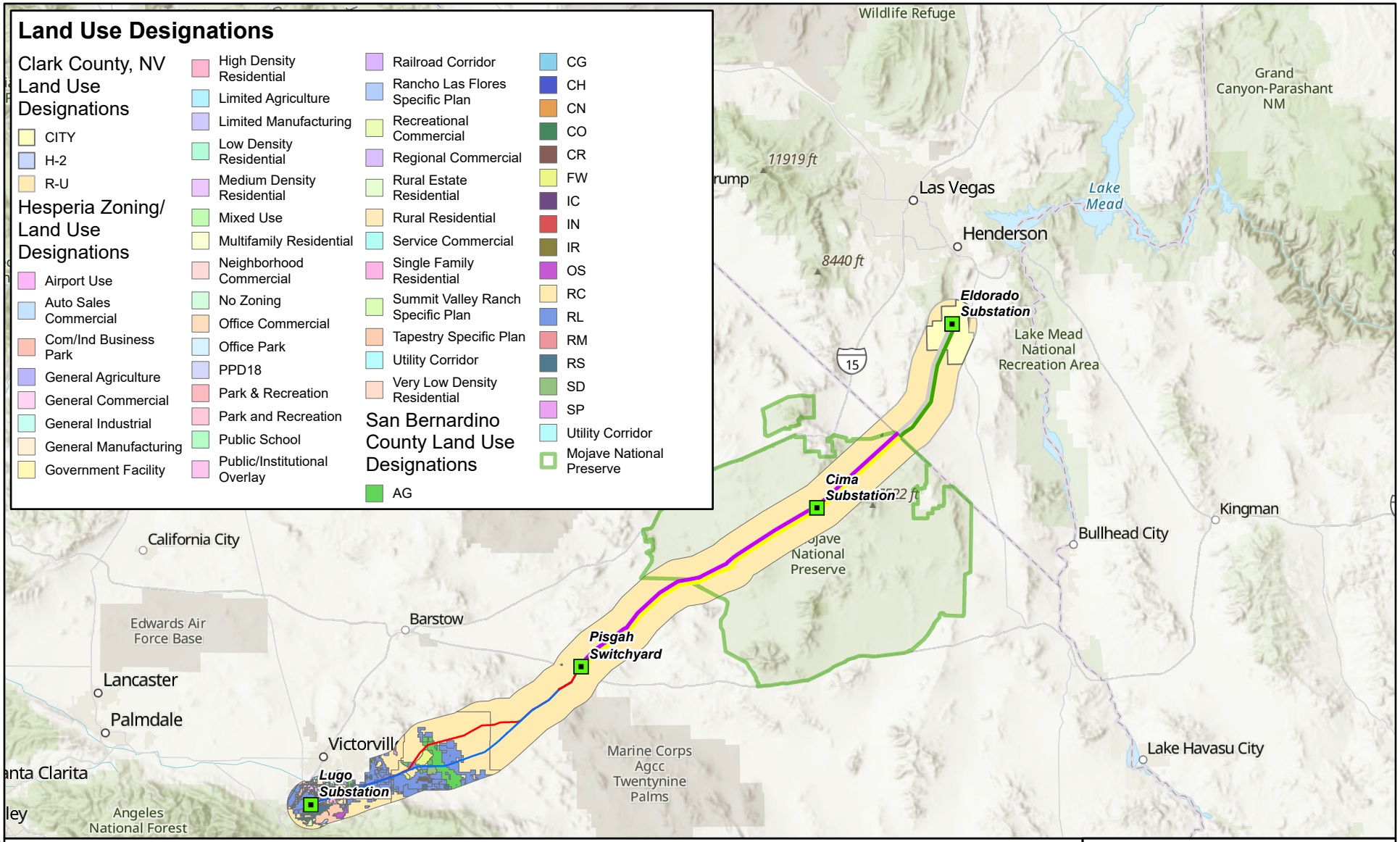
Further, the EPL Project would comply with all conditions and measures included in authorizations and permits for the purpose of avoiding or mitigating an environmental effect. Therefore, construction of the EPL Project would be consistent with Federal land management plans. Accordingly, no impacts would occur under this criterion.

5.11.4.1.2.2 Operations

No Impact. As presented in Chapter 3, SCE is currently performing O&M activities, including inspections, along the transmission lines included under the EPL Project. No material changes in O&M activities are anticipated with implementation of the EPL Project, and therefore no new impacts would be realized under this criterion during operations and maintenance.

5.11.5 CPUC Draft Environmental Measures

There are no CPUC Draft Environmental Measures identified for the Land Use and Planning resource area.


Land Use Designations
Clark County, NV Land Use Designations
CITY
H-2
R-U
Hesperia Zoning/ Land Use Designations
Airport Use
Auto Sales Commercial
Com/Ind Business Park
General Agriculture
General Commercial
General Industrial
General Manufacturing
Government Facility
High Density Residential
Limited Agriculture
Limited Manufacturing
Low Density Residential
Medium Density Residential
Mixed Use
Multifamily Residential
Neighborhood Commercial
No Zoning
Office Commercial
Office Park
PPD18
Park & Recreation
Park and Recreation
Public School
Public/Institutional Overlay
Railroad Corridor
Rancho Las Flores Specific Plan
Recreational Commercial
Regional Commercial
Rural Estate Residential
Rural Residential
Service Commercial
Single Family Residential
Summit Valley Ranch Specific Plan
Tapestry Specific Plan
Utility Corridor
Very Low Density Residential
San Bernardino County Land Use Designations
AG
CG
CH
CN
CO
CR
FW
IC
IN
IR
OS
RC
RL
RM
RS
SD
SP
Utility Corridor
Mojave National Preserve
Wildlife Refuge
Grand Canyon-Parashant NM
11919 ft
Las Vegas
Lake Mead
Henderson
8440 ft
Eldorado Substation
Lake Mead National Recreation Area
15
Cima Substation
Kingman
Bullhead City
California City
Mojave National Preserve
Edwards Air Force Base
Barstow
Pisgah Switchyard
Lancaster
Palmdale
Victorville
Lugo Substation
Marine Corps Agcc Twentynine Palms
Lake Havasu City
Angeles National Forest
Legend
Substation
Segment 1
Segment 2
Segment 3
Segment 4
Segment 5
Segment 6
0
15
30
Miles
N
ELDORADO-PISGAH-LUGO 220 kV PROJECT
LAND USE DESIGNATIONS
SOUTHERN CALIFORNIA EDISON
An EDISON INTERNATIONAL Company
ARCADIS
FIGURE
5.11-1
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5.12 Mineral Resources

This Section of the PEA describes the mineral resources in the area of the EPL Project, as well as the potential impacts resulting from construction and operation of the EPL Project.

According to the United States Geological Survey (USGS), a mineral resource is defined as a concentration of naturally occurring solid, liquid, or gaseous materials in or on the earth's crust in such a form and quantity, and of such a grade or quality, that it has reasonable prospects for economic extraction, either currently or in the future. Mineral resources include oil, natural gas, and metallic and non-metallic deposits. Mineral resources data were obtained from the following resources:

- USGS
- California Department of Conservation (DOC)
- California Geological Survey (CGS)
- San Bernardino Countywide Plan
- City of Hesperia General Plan
- Clark County (NV) Comprehensive Master Plan, Conservation Element

Aerial photographs were also used to analyze mineral resources in the vicinity of the EPL Project.

5.12.1 Environmental Setting

5.12.1.1 Mineral Resources

5.12.1.1.1 Known Mineral Resources

Mineral resources along the EPL Project alignment are presented in Figure 5.12-1.

5.12.1.1.1.1 San Bernardino County

Mineral resources are an integral part of development and the economic well-being of the County. The conservation, extraction and processing of those mineral resources is essential to meeting the needs of society. In San Bernardino County minerals are a foremost natural resource, with the Desert Planning Area—in which the Project alignment is located—accounting for more than 90 percent of all County mining activities (San Bernardino County 2007).

Approximately 95 active mines are located in San Bernardino County; these mines produce a variety of products including aggregates, clays, gold, silver, limestone, saline compounds, borates, talc, gypsum, and iron, among others. There are several large calcium carbonate mining operations in San Bernardino County. The County is home to the largest cement producer in the state. It also has the largest rare earth mine in North America. Extensive aggregate mining is also a major component of the mining industry within the County.

The project alignment is located proximate to active and former mines, and crosses areas designated as mineral resource zones (MRZs) in reports published by the California Department of Conservation's Division of Mines and Geology and the California Geological Survey. The eastern portions of Segments 1 and 2 are located adjacent to the Hector clay mine, which is identified by the BLM as a "high priority operation". The EPL Project alignment also crosses areas designated as "High Potential Mineral Areas" in Appendix D to the BLM DRECP LUPA. San Bernardino County has not delineated any mineral resource recovery sites in its general plan, in any specific plan, or in any other land use plan.

5.12.1.1.1.2 City of Hesperia

The City of Hesperia currently has not identified any known mineral resources that would be of value to the region and the residents of the state. The project alignment is not located on, or adjacent to, any mineral extraction operation or site within the City.

5.12.1.1.1.3 Clark County (NV)

Mineral resources in Clark County (NV) have been extracted since the discovery of lead ore at the Potosi mine in 1855. Since that time, a variety of metallic and nonmetallic minerals have been discovered in the County. Although the area is more widely known for gold and silver mines, the extraction of nonmetallic minerals used for building materials, such as gypsum, limestone, silica sand, and gravel dominates today. There are no major mines identified by the Nevada Department of Mines in the vicinity of the EPL Project alignment.

5.12.1.1.1.4 City of Boulder City (NV)

The City of Boulder City (NV) currently has not identified any known mineral resources that would be of value to the region and the residents of the state. The project alignment is not located on, or adjacent to, any mineral extraction operation or site within the City.

5.12.1.1.2 Active Mining Claims

Segments 1 and 2 are located on Public Land Survey System Sections on which active mining claims are located (Figure 5.12-1). No other active mining claims have been identified along the EPL Project alignment.

5.12.1.1.3 Active Mines

The EPL Project alignment does not cross any active mineral extraction activity sites (California Department of Conservation 2018; Nevada Division of Minerals 2020).

5.12.1.1.4 Resource Recovery Sites

There are no mineral resource recovery sites in the vicinity of the EPL Project alignment delineated in any General Plan, in a specific plan, or in any other land use plan.

5.12.2 Regulatory Setting

Federal, State, and local regulations were reviewed for applicability to the EPL Project.

5.12.2.1 Regulatory Setting

5.12.2.1.1 Federal

5.12.2.1.1.1 Surface Mining Control and Reclamation Act of 1977

This Act (30 U.S.C. §§ 1201-1328) establishes a program for regulating surface coal mining and reclamation activities. It establishes mandatory uniform standards for these activities on State and Federal lands, including a requirement that adverse impacts on fish, wildlife, and related environmental values be minimized. The Act creates an Abandoned Mine Reclamation Fund for use in reclaiming and restoring land and water resources adversely affected by mining practices.

5.12.2.1.2 State

5.12.2.1.2.1 California Surface Mining and Reclamation Act (Public Resources Code § 2710 et seq.)

The protection of regionally significant mineral resource deposits is one of the main emphases of the Surface Mining and Reclamation Act (SMARA). The law specifically mandates a two-phased process, commonly referred to as classification and designation, for mineral resources. The California Geological Survey is responsible under SMARA for carrying out the classification phase of the process.

SMARA requires the State Geologist (who is the chief administrator of the California Geological Survey) to classify lands into MRZs based on the known or inferred mineral resource potential of that land. The classification process is based solely on geology, without regard to land use or ownership. The primary goal of mineral land classification is to help ensure that the mineral resource potential of land is recognized and considered in the land use planning process. MRZ definitions are provided in Table 5.12-1.

The California Mining and Geology Board is responsible for the second phase, which allows the Board to identify areas within a production-consumption region that contain significant deposits of certain mineral resources that may be needed to meet the region's future demand.

Table 5.12-1. Mineral Resource Zone Definitions

MRZ-1	Areas where available geologic information indicates there is little likelihood for the presence of mineral resources.
MRZ-2a	Areas that contain significant measured or indicated reserves.
MRZ-2b	Areas where geologic information indicates that significant inferred resources or demonstrated subeconomic resources are present.
MRZ-3a	Areas likely to contain undiscovered mineral deposits similar to known deposits in the same producing district or region (hypothetical resources).
MRZ-3b	Areas judged to be favorable geologic environments for mineral resource occurrence, but where mineral discoveries have not been made in the region (speculative resources).
MRZ-4	Areas where geologic information does not rule out either the presence or absence of mineral resources.
ARA-6	Area with aggregate resources rated as highly significant.

Source: California Department of Conservation, Division of Mines and Geology

5.12.2.1.3 Local

The CPUC has sole and exclusive state jurisdiction over the siting and design of the EPL Project. Pursuant to GO 131-D, Section XIV.B, "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters." Consequently, public utilities are directed to consider local regulations and consult with local agencies, but the county and cities' regulations are not applicable as the county and cities do not have jurisdiction over the EPL Project. Accordingly, the following discussion of local land use regulations is provided for informational purposes only.

5.12.2.1.3.1 San Bernardino County Countywide Plan

The Natural Resources Element of the County of San Bernardino County Countywide Plan contains the following policy that is relevant to the EPL Project:

Policy NR-6.1 Mineral resource areas

We prioritize the conservation of land area with mineral resources by prohibiting or discouraging development of land that would substantially preclude the future development of mining facilities in areas classified as Mineral Resource Zone (MRZ) 2a, 2b, or 3a.

5.12.2.1.3.2 City of Hesperia General Plan 2010

The City of Hesperia General Plan has no goals or implementation policies relevant to mineral resources and the EPL Project.

5.12.2.1.3.3 Clark County (NV) Comprehensive Master Plan

The Clark County (NV) Comprehensive Master Plan has no goals or implementation policies relevant to mineral resources and the EPL Project.

5.12.3 Impact Questions

5.12.3.1 Impact Questions

The significance criteria for assessing the impacts to mineral resources come from the CEQA Environmental Checklist. According to the CEQA Checklist, a project causes a potentially significant impact if it would:

- Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state
- Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan

5.12.3.2 Additional CEQA Impact Questions

There are no CPUC-identified additional CEQA impact questions.

5.12.4 Impact Analysis

5.12.4.1 Impact Analysis

5.12.4.1.1 Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

5.12.4.1.1.1 Construction

No Impact. The EPL Project Alignment crosses lands with known or inferred mineral resource that are of value to the region and the residents of the State; however, the EPL Project would not result in the loss of availability of any of these known mineral resources. The scope of work under the EPL Project would occur within or immediately proximate to the existing alignment. The existing infrastructure has been in place for more than 80 years; in that time and to the knowledge of SCE, the presence of the transmission infrastructure has not resulted in the loss of availability of any mineral resource. Because all new inter-set structures would be located within the existing alignment, mineral resources located within or proximate to the existing rights-of-way and easements that can be and are currently available to be safely extracted (i.e., that are available or that are actively mined) would continue to be available. Therefore, there would be no impact under this criterion.

5.12.4.1.1.2 Operations

No Impact. As presented in Chapter 3, SCE is currently performing O&M activities, including inspections, along the transmission lines included under the EPL Project. No material changes in O&M

activities are anticipated with implementation of the EPL Project, and therefore no new impacts would be realized under this criterion during operations and maintenance.

5.12.4.1.2 Would the project result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use?

5.12.4.1.2.1 Construction

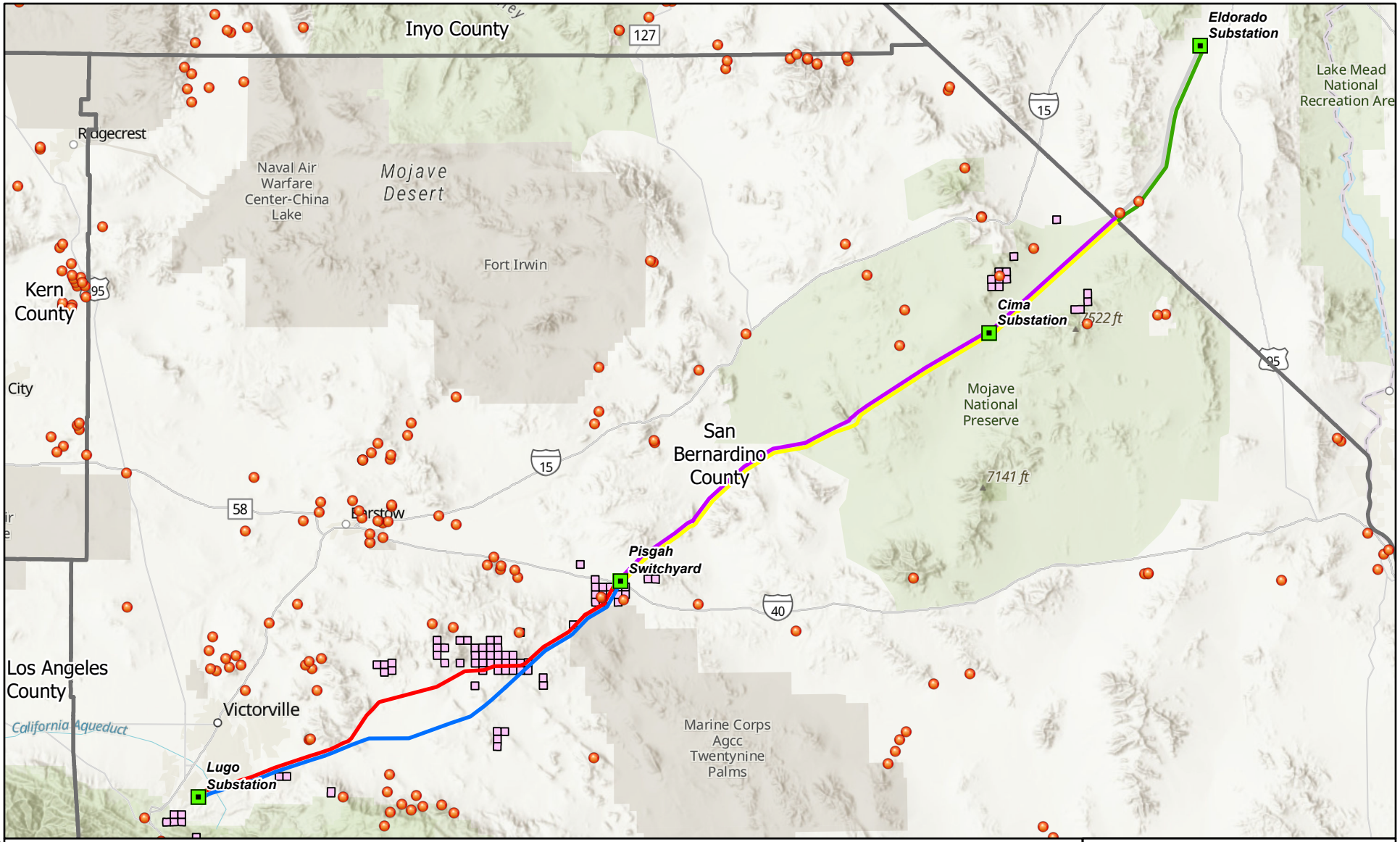
No Impact. No mineral resource recovery sites in the vicinity of the EPL Project alignment are delineated in any General Plan, in a specific plan, or in any other land use plan. Therefore, there would be no impact under this criterion.

5.12.4.1.2.2 Operations

No Impact. No mineral resource recovery sites in the vicinity of the EPL Project alignment are delineated in any General Plan, in a specific plan, or in any other land use plan. Therefore, there would be no impact under this criterion.

5.12.5 CPUC Draft Environmental Measures

There are no CPUC Draft Environmental Measures identified for the Mineral Resources resource area.



Legend

- Substation
- Segment 1
- Segment 2
- Segment 3
- Segment 4
- Segment 5
- Segment 6
- County Boundary
- Mines and Mineral Resources
- Mining Claims by Section

NOTES:
Sources: https://gis.conservation.ca.gov/server/rest/services/MOL/MOLMinesNoAB/FeatureServer;
https://services1.arcgis.com/Hp6G80Pky0om7QvQ/ArcGIS/rest/services/Mines_and_Mineral_Resources/FeatureServer
https://services5.arcgis.com/aEZWbbQHTw7fmHLY/arcgis/rest/services/CaliforniaMiningClaims/FeatureServer

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Miles

ELDORADO-PISGAH-LUGO 220 kV PROJECT

MINES AND MINERAL RESOURCES

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company | ARCADIS

FIGURE 5.12-1

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5.13 Noise

This Section of the PEA describes the existing noise in the area of the EPL Project, as well as the potential impacts resulting from construction and operation of the EPL Project.

5.13.1 Environmental Setting

5.13.1.1 Noise Sensitive Land Uses

The EPL Project is located in unincorporated San Bernardino County and in the City of Hesperia in California, and in unincorporated Clark County and the City of Boulder City in Nevada. Project-related construction activities would occur mainly in rural areas and open space areas. However, some Project activities in California would be conducted in proximity to noise sensitive land uses, including residences, located near the existing transmission lines. Existing noise sources in proximity to these potentially noise-sensitive land uses include community noise and roadway and highway noise.

The definition of a sensitive receptor varies by jurisdiction; for the purposes of this analysis, sensitive receptors include those defined in the San Bernardino County Development Code, Section 83.01.080: "Noise-sensitive land uses shall include residential uses, schools, hospitals, nursing homes, religious institutions, libraries, and similar uses."

Much of the land traversed by the EPL Project alignment in unincorporated San Bernardino County is comprised of open space. The few sensitive receptors located near the EPL Project alignment in Segments 1 and 2 are comprised of rural residences. Those portions of the City of Hesperia adjacent to the locations where work under the EPL Project would occur are characterized as suburban residential areas; all receptors in the vicinity of these locations are considered sensitive. No work in Segments 3 and 4 in California, or in Segments 5 and 6 in Nevada, would be performed near any potentially sensitive receptor.

Noise sensitive land uses and noise sensitive receptors are illustrated on Figure 5.13-1. The nearest distance from one of these sensitive receptors to an EPL construction activity is shown in Table 5.13-1.

Table 5.13-1. Distance from Sensitive Receptor Locations to EPL Project Alignment

Receptor Area	Distance, Nearest (feet)
City of Hesperia, Inter-set Installation	130
City of Hesperia, Structure Modification	115
San Bernardino County, Inter-set Installation	900
San Bernardino County, Structure Modification	120
San Bernardino County, Staging Yard	400

5.13.1.2 Ambient Noise

Table 5.13-2 summarizes the results of the ambient noise measurements taken in the EPL Project area; complete results and the locations of these monitoring locations are provided in the Ambient Noise Report provided in Appendix H.

Table 5.13-2. Ambient Noise Measurements

Monitoring Location	Jurisdiction	CNEL, dBA
Hesperia	City of Hesperia	56.5—60.4
Apple Valley	San Bernardino County	43.5—51.5
Lucerne Valley	San Bernardino County	38.5—45.9
Johnson Valley	San Bernardino County	34.6—43.8

Table 5.13-2. Ambient Noise Measurements

Monitoring Location	Jurisdiction	CNEL, dBA
Mojave National Preserve, Kelbaker Road	San Bernardino County	37.7—47.5
Mojave National Preserve, Ivanpah Road	San Bernardino County	38.0—44.2

5.13.2 Regulatory Setting

Federal, State, and local regulations were reviewed for applicability to the EPL Project.

5.13.2.1 Regulatory Setting

5.13.2.1.1 Federal

5.13.2.1.1.1 U.S. Environmental Protection Agency

The United States Environmental Protection Agency has developed and published criteria for environmental noise levels with a directive to protect public health and welfare with an adequate margin of safety (USEPA 1974). This USEPA criterion (Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety) was developed to be used as an acceptable guideline when no other local, county, or State standard has been established. However, the USEPA criterion is not meant to substitute for agency regulations or standards in cases where States and localities have developed criteria according to their individual needs and situations.

5.13.2.1.1.2 Federal Transit Administration

The Federal Transit Administration (FTA) has developed vibration impact thresholds for noise-sensitive buildings, residences, and institutional land uses. These thresholds are 80 vibration velocity (VdB) at residences and buildings where people normally sleep (e.g., nearby residences and daycare facilities) and 83 VdB at institutional buildings (e.g., schools and churches). These thresholds apply to conditions where there are an infrequent number of events per day.

5.13.2.1.1.3 National Park Service

The NPS Soundscape Management Policy 4.9 states:

- Preserve, to the greatest extent possible, the natural soundscapes of parks;
- Restore to the natural condition wherever possible those park soundscapes that have become degraded by unnatural sounds (noise); and
- Protect natural soundscapes from unacceptable impacts

5.13.2.1.2 State

5.13.2.1.2.1 California Noise Control Act

The California Noise Control Act states that excessive noise is a serious hazard to public health and welfare, and that exposure to certain levels of noise can result in physiological, psychological, and economic damage. It also recognizes that continuous and increasing bombardment of noise exists in urban, suburban, and rural areas. This act declares that the State of California has the responsibility to protect the health and welfare of its citizens by the control, prevention, and abatement of noise. The Office of Noise Control in the Department of Health Services provides assistance to local communities developing local noise control programs and works with the Governor's Office of Planning and Research

to provide guidance for the preparation of the required noise elements in city and county general plans, pursuant to Section 65302(f) of the California Government Code.

5.13.2.1.3 Local

The CPUC has sole and exclusive state jurisdiction over the siting and design of the EPL Project. Pursuant to GO 131-D, Section XIV.B, "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters." Consequently, public utilities are directed to consider local regulations and consult with local agencies, but the county and cities' regulations are not applicable as the county and cities do not have jurisdiction over the EPL Project. Accordingly, the following discussion of local land use regulations is provided for informational purposes only.

5.13.2.1.3.1 San Bernardino County Countywide Plan

The San Bernardino County Countywide Plan does not contain any policies that are relevant to the EPL Project.

5.13.2.1.3.2 San Bernardino County Development Code

Section 83.01.080 establishes standards concerning acceptable noise levels for both noise-sensitive land uses and for noise-generating land uses. The Section notes the following:

(a) Noise measurement. Noise shall be measured: (1) At the property line of the nearest site that is occupied by, and/or zoned or designated to allow the development of noise-sensitive land uses;

(b) Noise impacted areas. Areas within the County shall be designated as "noise impacted" if exposed to existing or projected future exterior noise levels from mobile or stationary sources exceeding the standards listed in Subsection (d) (Noise standards for stationary noise sources) and Subsection (e) (Noise standards for adjacent mobile noise sources), below.

...

Noise-sensitive land uses shall include residential uses, schools, hospitals, nursing homes, religious institutions, libraries, and similar uses.

(c) Noise standards for stationary noise sources.

(1) Noise standards. Table 83-2 (Noise Standards for Stationary Noise Sources) describes the noise standard for emanations from a stationary noise source, as it affects adjacent properties:

Table 83-2
Noise Standards for Stationary Noise Sources

Affected Land Uses (Receiving Noise)	7:00 a.m. - 10:00 p.m. Leq	10:00 p.m. - 7:00 a.m. Leq
Residential	55 dB(A)	45 dB(A)
Professional Services	55 dB(A)	55 dB(A)
Other Commercial	60 dB(A)	60 dB(A)
Industrial	70 dB(A)	70 dB(A)

Leq = (Equivalent Energy Level). The sound level corresponding to a steady-state sound level containing the same total energy as a time-varying signal over a given sample period, typically one, eight or 24 hours.
dB(A) = (A-weighted Sound Pressure Level). The sound pressure level, in decibels, as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound, placing greater emphasis on those frequencies within the sensitivity range of the human ear.
Ldn = (Day-Night Noise Level). The average equivalent A-weighted sound level during a 24-hour day obtained by adding 10 decibels to the hourly noise levels measured during the night (from 10:00 p.m. to 7:00 a.m.). In this way Ldn takes into account the lower tolerance of people for noise during nighttime periods.

(2) Noise limit categories. No person shall operate or cause to be operated a source of sound at a location or allow the creation of noise on property owned, leased, occupied, or otherwise controlled by the person, which causes the noise level, when measured on another property, either incorporated or unincorporated, to exceed any one of the following:

(A) The noise standard for the receiving land use as specified in Subsection B (Noise-impacted areas), above, for a cumulative period of more than 30 minutes in any hour.

(B) The noise standard plus 5 dB(A) for a cumulative period of more than 15 minutes in any hour.

(C) The noise standard plus 10 dB(A) for a cumulative period of more than five minutes in any hour.

(D) The noise standard plus 15 dB(A) for a cumulative period of more than one minute in any hour.

(E) The noise standard plus 20 dB(A) for any period of time.

(d) Noise standards for adjacent mobile noise sources. Noise from mobile sources may affect adjacent properties adversely. When it does, the noise shall be mitigated for any new development to a level that shall not exceed the standards described in the following Table 83-3 (Noise Standards for Adjacent Mobile Noise Sources).

Table 83-3
Noise Standards for Adjacent Mobile Noise Sources

Land Use		Ldn (or CNEL) dB(A)	
Categories	**Uses**	**Interior (1)**	**Exterior (2)**
Residential	Single and multi-family, duplex, mobile homes	45	60 (3)
Commercial	Hotel, motel, transient housing	45	60
	Commercial retail, bank, restaurant	54	N/A
	Office building, research and development, professional offices	45	65
	Amphitheater, concert hall, auditorium, movie theater	45	N/A
Institutional/Public	Hospital, nursing home, school classroom, religious institution, library	45	65
Open Space	Park	N/A	65

Notes:
1 The indoor environment shall exclude bathrooms, kitchens, toilets, closets and corridors.
2 The outdoor environment shall be limited to:
- Hospital/office building patios
- Hotel and motel recreation areas
- Mobile home parks
- Multi-family private patios or balconies
- Park picnic areas
- Private yard of single-family dwellings
- School playgrounds

3 An exterior noise level of up to 65 dB(A) (or CNEL) shall be allowed provided exterior noise levels have been substantially mitigated through a reasonable application of the best available noise reduction technology, and interior noise exposure does not exceed 45 dB(A) (or CNEL) with windows and doors closed. Requiring that windows and doors remain closed to achieve an acceptable interior noise level shall necessitate the use of air conditioning or mechanical ventilation.

CNEL = (Community Noise Equivalent Level). The average equivalent A-weighted sound level during a 24-hour day, obtained after addition of approximately five decibels to sound levels in the evening from 7 p.m. to 10 p.m. and 10 decibels to sound levels in the night from 10 p.m. to 7 a.m.

...

(g) Exempt noise. The following sources of noise shall be exempt from the regulations of this Section:

...

(3) Temporary construction, maintenance, repair, or demolition activities between 7:00 a.m. and 7:00 p.m., except Sundays and Federal holidays.

Section 83.01.090, Vibration, includes the following:

(a) Vibration standard. No ground vibration shall be allowed that can be felt without the aid of instruments at or beyond the lot line, nor shall any vibration be allowed which produces a particle velocity greater than or equal to two-tenths (0.2) inches per second measured at or beyond the lot line.

(c) Exempt vibrations. The following sources of vibration shall be exempt from the regulations of this Section.

...

(2) Temporary construction, maintenance, repair, or demolition activities between 7:00 a.m. and 7:00 p.m., except Sundays and Federal holidays.

5.13.2.1.3.3 City of Hesperia General Plan 2010

The City of Hesperia General Plan Noise Element establishes policies and programs designed to reduce noise levels in the long term. The Element includes, among others, the following goals and implementation policies:

Goal: NS-1. To achieve and maintain an environment which is free from excessive or harmful noise through identification, control and abatement.

Implementation Policy: NS-1.10. Limit the hours of construction activity in, and around, residential areas in order to reduce the intrusion of noise in the early morning and late evening hours and on weekends and holidays.

Implementation Policy: NS-1.13. Ensure adequate noise control measures at construction sites by requiring that construction equipment be fitted with manufacturer-recommended mufflers and ensuring physical separation of machinery maintenance and staging areas from adjacent residential uses.

Goal: NS-2 To achieve and maintain an environment which is free from excessive vibration.

Implementation Policy: NS 2.1. Control exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels as set forth in Table NS-1 and Municipal Code Section 16.20.130

5.13.2.1.3.4 City of Hesperia Municipal Code

Section 16.20.125 – Noise, and Section 16.20.130 – Vibration, of the Municipal Code establish noise and vibration standards for activities within the City.

Section 16.20.125 – Noise, Subsection B, Noise Standards states:

1. The following table describes the noise standard for emanations from any source, as it affects adjacent properties:

NOISE STANDARDS		
Affected Land Use (Receiving Noise)	Maximum Noise Level	Time Period
A-1, A-2, R-1, R-3 and RR Zone Districts	55 (dBA)	10:00 p.m. - 7:00 a.m.
A-1, A-2, R-1, R-3 and RR Zone Districts C-1, C-2, C-3, C-4, C-R, AP, and P-I Zone Districts	60 (dBA)* 65 (dBA)*	7:00 a.m. - 10:00 p.m. Anytime
I-1 and I-2 Zone Districts	70 (dBA)*	Anytime
Due to wind noise, the maximum permissible noise level may be adjusted so that it is no greater than five dB(A) above the ambient noise level.		

2. No person shall operate or cause to be operated any source of sound at any location or allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such person, which causes the noise level, when measured on any other property, either incorporated or unincorporated, to exceed:

a. The noise standard for that receiving land use (as specified in subsection (B)(1) of this section) for a cumulative period of more than thirty (30) minutes in any hour; or

b. The noise standard plus five dB(A) for a cumulative period of more than fifteen (15) minutes in any hour; or

c. The noise standard plus ten dB(A) for a cumulative period of more than five minutes in any hour; or

d. The noise standard plus fifteen (15) dB(A) for a cumulative period of more than one minute in any hour; or

e. The noise standard plus twenty (20) dB(A) for any period of time.

C. If the measured ambient level exceeds any of the first four noise limit categories above, the allowable noise exposure standard shall be increased to reflect the ambient noise level. If the ambient noise level exceeds the fifth noise limit category, the maximum allowable noise level under this category shall be increased to reflect the maximum ambient noise level.

D. If the alleged offense consists entirely of impact noise or simple tone noise, each of the noise levels in subsection (B)(1) of this section shall be reduced by five dB(A).

E. Exempt Noises. The following sources of noise are exempt: 1. Motor vehicles not under the control of the industrial use; 2. Emergency equipment, vehicles and devices; 3. Temporary construction, repair, or demolition activities between seven a.m. and seven p.m. except Sundays and federal holidays.

Section 16.20.130 – Vibration, Subsection A, Vibration Standard, states that "[n]o ground vibration shall be allowed which can be felt without the aid of instruments at or beyond the lot line; nor will any vibration be permitted which produces a particle velocity greater than or equal to 0.2 inches per second measured at or beyond the lot line." Subsection C, Exempt Vibrations, notes that "[t]emporary construction, maintenance or demolition activities between seven a.m. and seven p.m. except Sundays and federal holidays" are exempt from the established standards.

5.13.2.1.3.5 Clark County, Nevada

The Clark County Code of Ordinances (Section 30.68, Site Environmental Standards) identifies standards to protect adjacent properties against objectionable noise, and the ordinance limits the maximum permitted sound levels from continuous or regular sources of noise with standards for each octave band

for sounds received by residential, business or industrial districts. The standards in the ordinance do not apply to aircraft noise or construction and/or demolition activity during daytime hours, where "daytime" is from 6:00 a.m. to 10:00 p.m., as defined by the Unified Development Code (Section 30.08). The Code also states that "[v]ibration shall not be discernable to the human senses at any property line at any time."

5.13.2.1.3.6 City of Boulder City, Nevada

Title 7 – Police Regulations, Chapter 6 – Boulder City Noise Ordinance, states in part:

> 7-6-6. - EXEMPTIONS
>
> The following types of emissions of sound are not subject to the noise disturbance restrictions of this Chapter:
>
> C. Construction, Maintenance and Common Residential Noise. 1 .Construction or demolition work specifically approved by the City pursuant to permit or contract during the hours of 5:00 a.m. and 8:00 p.m. during the months of May through September, and during the hours of 6:00 a.m. and 7:00 p.m. during the months of October through April.

5.13.3 Impact Questions

5.13.3.1 Impact Questions

The significance criteria for assessing the impacts from noise are determined from the CEQA Environmental Checklist. According to the CEQA Checklist, a project causes a potentially significant impact if it would cause:

- Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies
- Generation of excessive groundborne vibration or groundborne noise levels
- Exposure of people residing or working in the project area to excessive noise levels for a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport

5.13.3.2 Additional CEQA Impact Questions

There are no CPUC-identified additional CEQA impact questions.

5.13.4 Impact Analysis

5.13.4.1 Impact Analysis

5.13.4.1.1 Would the project generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

5.13.4.1.1.1 Construction

Less than Significant Impact. The EPL Project would not result in any permanent increase in ambient noise levels. The EPL Project would result in temporary increases in ambient noise levels.

Construction activities would require the temporary use of various types of noise-generating construction equipment; Table 5.13-3 provides a list of the typical construction equipment involved in EPL Project activities, and Table 5.13-5 presents the noise generated by typical construction activities. Helicopter

operations could be expected to generate noise levels of approximately 88 dBA at a distance of 150 feet. (U.S. Forest Service 2008).

Table 5.13-3. Typical Construction Equipment Noise Levels

Equipment	Noise Level (L_{max} dBA) at 50 feet
Backhoe	80
Concrete mixer	85
Pump truck	82
Crane, Mobile	85
Dozer	85
Excavator	85
Generator	82
Grader	85
Man lift	85
Loader	80
Paver	85
Roller	85
Scraper	85
Trucks	80-84
Light-duty Helicopter	81 (at 150 feet)
Medium-duty Helicopter	88 (at 150 feet)

Source: FHWA 2006

Noise standards established by San Bernardino County and the City of Hesperia for residential areas are presented in Section 5.13.2. In San Bernardino County, construction activities performed on non-Federal holidays Monday through Saturday between the hours of 7:00 a.m. and 7:00 p.m. are exempt from noise standards established by the County; in the City of Hesperia, construction activities performed on non-Federal holidays Monday through Saturday between the hours of 7:00 a.m. and 7:00 p.m. are exempt from noise standards established by the City. Construction activities performed between the hours of 6:00 a.m. to 10:00 p.m in unincorporated Clark County (NV) are exempt from the County noise ordinance. Construction activities performed between the hours of 5:00 a.m. and 8:00 p.m. during the months of May through September, and during the hours of 6:00 a.m. and 7:00 p.m. during the months of October through April, in the City of Boulder City, are exempt from the City noise ordinance.

In the City of Hesperia, work will be performed only Monday through Saturday, and only between the hours of 7:00 a.m. and 7:00 p.m.; therefore, work in the City will be exempt from noise standards established by the City, and thus the EPL Project will not generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established by the City.

In Nevada, work will be performed only during those hours exempted from the applicable noise ordinances, and thus the EPL Project will not generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established by the County or City.

The EPL Project alignment crosses or is in close proximity to areas with residential uses, which are a noise-sensitive land use, in unincorporated San Bernardino County. The EPL Project alignment does not cross, and is not in close proximity to, any other noise-sensitive land use. No reconductoring-related work would occur in proximity to a sensitive receptor in the County; therefore, this work, regardless of time of performance, would not exceed the standards established by the County.

The replacement of insulators and other hardware on structures (without use of a helicopter) could generate a noise level of approximately 81 dBA at a distance of 100 feet, and 65 dbA at a distance of

approximately 800 feet. Therefore, work on any structure to be modified that is located within approximately 800 feet of a potentially-sensitive receptor in an area with a designated noise-sensitive land use would occur only between the hours of 7:00 a.m. and 7:00 p.m. and not on Sundays or Federal holidays, and thus would be exempt from City and County standards. The modification of structures that are not located proximate to a noise-sensitive land use may be performed at any time and would be compliant with the County standard given the absence of a noise-sensitive land use.

The installation of an inter-set structure could generate a noise level of approximately 65 dBA at a distance of approximately 2,225 feet. Only two inter-set structures in San Bernardino County are located closer than 2,225 feet to a potentially noise-sensitive land use: M159-H4A and M160-H1A. Therefore, the installation of these structures would occur only between the hours of 7:00 a.m. and 7:00 p.m. and not on Sundays or Federal holidays, and thus would be exempt from County standards. No other inter-set structures are located within 2,225 feet of a potentially-sensitive receptor in an area with a designated noise-sensitive land use.

The operation of staging areas will result in the generation of noise in excess of the County standard for residential land uses (55 dB(a) Leq) for noise generated by stationary sources at a distance of approximately 3,000 feet. SCE estimates that fewer than 100 residences may be affected by noise from three staging areas; these residences are located on lands zoned Residential Living. At these residences, activities at staging areas may generate noise in excess of the County standard; given the length of time that a staging area will be used, and that the use will be concentrated in a single location over that time, these represent a stationary noise source. Although perceptible in the setting of low ambient noise in the vicinity of some staging areas, the increase would not be considered substantial because work at a staging area would generally not involve all equipment in simultaneous use, and thus the actual noise generated would be less than shown in Table 5.13-5. Additionally, the number of receptors in the vicinity is limited, and the intermittent and variable nature of noise generation limits the potential for adverse effects such as annoyance to be experienced by offsite receptors. Use of these staging areas would be limited to the hours of 7:00 a.m. and 10:00 p.m. Given the perceptible increase in noise levels at times, implementation of the activities described in Section 3.13.1.2 would reduce the effects to ensure a less than significant impact; these activities include precautionary methods to reduce the effects of noise attributed to the EPL Project to levels that would not be substantial in the context of the project surroundings and existing noise levels.

5.13.4.1.1.2 Operations

No Impact. As presented in Chapter 3, SCE is currently performing O&M activities, including inspections, along the transmission lines included under the EPL Project. No material changes in O&M activities are anticipated with implementation of the EPL Project, and therefore no new impacts would be realized under this criterion during operations and maintenance.

5.13.4.1.2 Would the project generate excessive groundborne vibration or groundborne noise levels?

5.13.4.1.2.1 Construction

No Impact. Construction activities will not expose persons to or generation of excessive groundborne vibration or groundborne noise levels. Construction activities will generate groundborne vibration from geotechnical drill rigs, excavators, augers, dump trucks, backhoes, and other general construction equipment.

Section 83.01.090 of the San Bernardino County Development Code and Section 16.20.130 of the City of Hesperia Municipal Code both state that "[n]o ground vibration shall be allowed that can be felt without the aid of instruments at or beyond the lot line, nor shall any vibration be allowed which produces a

particle velocity greater than or equal to two-tenths (0.2) inches per second measured at or beyond the lot line." The codes also exempt from the regulations "[t]emporary construction, maintenance, repair, or demolition activities between 7:00 a.m. and 7:00 p.m., except Sundays and Federal holidays."

Vibration impacts associated with construction operations would primarily affect those receptors located closest to locations where new inter-set structures will be installed, and near conductor removal/ replacement locations. Table 5.13-4 lists the anticipated levels of ground vibration produced by typical construction equipment.

Table 5.13-4. Vibration Source Levels for Typical Construction Equipment

Equipment	Vibration Level at 50 feet (in/sec)
Excavator	0.007
Backhoe	0.008
Auger	0.008
Bulldozer	0.008
Crane	0.003
Heavy Truck	0.007

Source: City of Hermosa Beach 2015

New inter-set structures will be installed as near as 130 feet from a residence. Screening level analysis indicates the vibration levels associated with these activities would register at a level of less than 0.2 inches per second at the nearest residential structure given the intervening distance. In Nevada, no potentially-affected receptors are located in the vicinity of the EPL Project alignment, and thus would not be impacted. Therefore, groundborne vibration impacts associated with construction activities would not exceed the identified significance threshold at any residence, and there would be no impact under this criterion.

5.13.4.1.2.2 Operations

No Impact. As presented in Chapter 3, SCE is currently performing O&M activities, including inspections, along the transmission lines included under the EPL Project. No material changes in O&M activities are anticipated with implementation of the EPL Project, and therefore no new impacts would be realized under this criterion during operations and maintenance.

5.13.4.1.3 For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

5.13.4.1.3.1 Construction

No Impact. The western portions of Segment 1 and 2 are located within two miles of Hesperia Airport and within the area addressed in the Comprehensive Land Use Plan: Hesperia Airport (Vidal 1991). No portion of the project in Nevada is within two miles of a public airport or public use airport or in an area subject to an airport land use plan.

As described above, construction of the EPL Project would not expose people to noise levels in excess of standards established in a general plan or ordinance. Further, increases in noise levels in the vicinity of individual construction work areas during construction will be short term, intermittent, and temporary, and will not expose people residing near individual construction work areas to excessive noise levels. The locations where work would be conducted under the EPL Project is located outside the 60 dBA CNEL noise contour for the Hesperia Airport. Thus, project construction workers will not be exposed to excessive noise levels from airport operations.

Because construction of the EPL Project will not expose people residing within two miles of a public airport and near individual construction work areas to excessive noise levels, and because construction of the EPL Project will not expose workers to excessive noise levels, no impact will be realized under this criterion.

5.13.4.1.3.2 Operations

No Impact. As presented in Chapter 3, SCE is currently performing O&M activities, including inspections, along the transmission lines included under the EPL Project. No material changes in O&M activities are anticipated with implementation of the EPL Project, and therefore no new impacts would be realized under this criterion during operations and maintenance.

5.13.4.2 Noise Levels

5.13.4.2.1 Noise Levels for Each Piece of Equipment

Table 5.13-5 identifies each phase of construction, the equipment used in each construction phase, and the length of each phase at any single location.

5.13.4.2.2 Estimated Cumulative Equipment Noise Levels

Estimated cumulative equipment noise levels are presented in Table 5.13-3.

5.13.4.2.3 Phases of Operation

There are no separate phases of operation of the infrastructure to be installed under the EPL Project; noise generated during operation of the EPL Project would not exceed the levels of pre-project existing noise generated currently along the EPL Project.

5.13.4.2.4 Manufacturer's Specifications for Equipment

The specific models of construction equipment to be used during construction and operation of the EPL Project are not known at this time; therefore, the manufacturer's specifications for such equipment cannot be provided at this time. Equipment equipped by the manufacturer with noise-control equipment will be operated with said noise-control equipment. If requested by the CPUC, SCE will provide the manufacturer's specifications for specific models of construction equipment at the time such construction equipment is identified.

5.13.4.2.5 Approaches to Reduce Impacts from Noise

SCE will implement the standard practices contained in Section 3.13.1.2 to reduce the generation of noise during construction of the EPL Project.

5.13.5 CPUC Draft Environmental Measures

There are no CPUC Draft Environmental Measures identified for the Noise resource area.

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Table 5.13-5. Construction Noise Levels

Equipment Required	Equipment Noise Level (Leq; 50 feet)	Phase Noise Level (Leq; 50 feet)	Phase Duration at Each Location	Receptor Nearest to Construction Phase	Noise Level at Nearest Receptor (Leq)	Exceeds Noise Standard at Nearest Receptor?	Distance to 65 dBA[1]
Survey							
1-Ton Truck, 4x4	80	80	1 day	Residence, 130 feet from new inter-set location	72	No[a]	280
Staging Area							
1-Ton Truck, 4x4	80	91	180 days	Residence, 650 feet from staging area	69	Yes	1,000
R/T Forklift	85						
Boom/Crane Truck	85						
Water Truck	84						
Generator	65						
Truck, Semi-Tractor	84						
Road Work							
1-Ton Truck, 4x4	80	93	1 day	Residence, 4,200 feet from new inter-set location	55	No	1,250
Backhoe/Front Loader	80						
Track Type Dozer	85						
Motor Grader	85						
Water Truck	84						
Drum Type Compactor	85						
Excavator	85						
Lowboy Truck/Trailer	84						
TSP Foundation							
3/4-Ton Truck, 4x4	80	92	2 days	Residence, 130 feet from new inter-set location	84	No[a]	1,125
Boom/Crane Truck	85						
Backhoe/Front Loader	80						
Auger Truck	84						
Water Truck	84						
Dump Truck	84						
Concrete Mixer Truck	85						
TSP Haul							
3/4-Ton Truck, 4x4	80	90	¼ day	Residence, 130 feet from new inter-set location	82	No	890
Boom/Crane Truck	85						
Flat Bed Pole Truck	84						

Table 5.13-5. Construction Noise Levels

Equipment Required	Equipment Noise Level (Leq; 50 feet)	Phase Noise Level (Leq; 50 feet)	Phase Duration at Each Location	Receptor Nearest to Construction Phase	Noise Level at Nearest Receptor (Leq)	Exceeds Noise Standard at Nearest Receptor?	Distance to 65 dBA[1]
Water Truck	84						
TSP Assembly							
3/4-Ton Truck, 4x4	80	89	1 day	Residence, 130 feet from new inter-set location	81	No[a]	790
1-Ton Truck, 4x4	80						
Water Truck	84						
Compressor Trailer	65						
Boom/Crane Truck	85						
TSP Erection							
3/4-Ton Truck, 4x4	80	98	1 day	Residence, 130 feet from new inter-set location	90	No[a]	2,225
1-Ton Truck, 4x4	80						
Water Truck	84						
Compressor Trailer	65						
R/T Crane	85						
Heavy-duty Helicopter	97						
LWS Pole Haul							
3/4-Ton Truck, 4x4	80	90	¼ day	Residence, 130 feet from new inter-set location	82	No[a]	890
Water Truck	84						
Boom/Crane Truck	85						
Flat Bed Pole Truck	84						
LWS Pole Assembly							
3/4-Ton Truck, 4x4	80	89	¼ day	Residence, 130 feet from new inter-set location	81	No[a]	790
Compressor Trailer	65						
1-Ton Truck, 4x4	80						
Water Truck	84						
Boom/Crane Truck	85						
Install LWS Pole							
1-Ton Truck, 4x4	80	98	¼ day	Residence, 130 feet from new inter-set location	90	No[a]	2,225
Manlift/Bucket Truck	85						
Boom/Crane Truck	85						
Auger Truck	84						
Water Truck	84						
Backhoe/Frontloader	80						

Table 5.13-5. Construction Noise Levels

Equipment Required	Equipment Noise Level (Leq; 50 feet)	Phase Noise Level (Leq; 50 feet)	Phase Duration at Each Location	Receptor Nearest to Construction Phase	Noise Level at Nearest Receptor (Leq)	Exceeds Noise Standard at Nearest Receptor?	Distance to 65 dBA[1]
Extendable Flat Bed Pole Truck	84						
Medium-duty Helicopter	97						
Modify Existing Structures							
¾-Ton Truck, 4x4	80	99 89 (without helicopter)	1 day	Residence, 100 feet from structure to be modified	93 81 (without helicopter)	No[a]	800
1-Ton Truck, 4x4	65						
Compressor Trailer	85						
Manlift/Bucket Truck	80						
Boom/Crane Truck	85						
Light Helicopter	97						
Install/Remove Conductor/OHGW							
3/4-Ton Truck, 4x4	80	97	20 days	Residence, 6,500 feet distant	55	No[a]	2,000
1-Ton Truck, 4x4	80						
Manlift/Bucket Truck	85						
Boom/Crane Truck	85						
Dump Truck	84						
Wire Truck/Trailer	84						
Sock Line Puller	84						
Bull Wheel Puller	84						
Hydraulic Rewind Puller	84						
Static Truck/ Tensioner	84						
Backhoe/Front Loader	80						
Truck, Semi-Tractor	84						
Lowboy Truck/Trailer	84						
Water Truck	84						
Light Helicopter	90						
Conductor Splicing Rig	84						
Fiber Splicing Lab	84						
Install/Remove Guard Structures							
3/4-Ton Truck, 4x4	80	92	½ day	N/A; no guard structures to be installed within 2 miles of receptor	N/A	No[a]	1,125
1-Ton Truck, 4x4	80						
Compressor Trailer	65						
Backhoe/Front Loader	80						

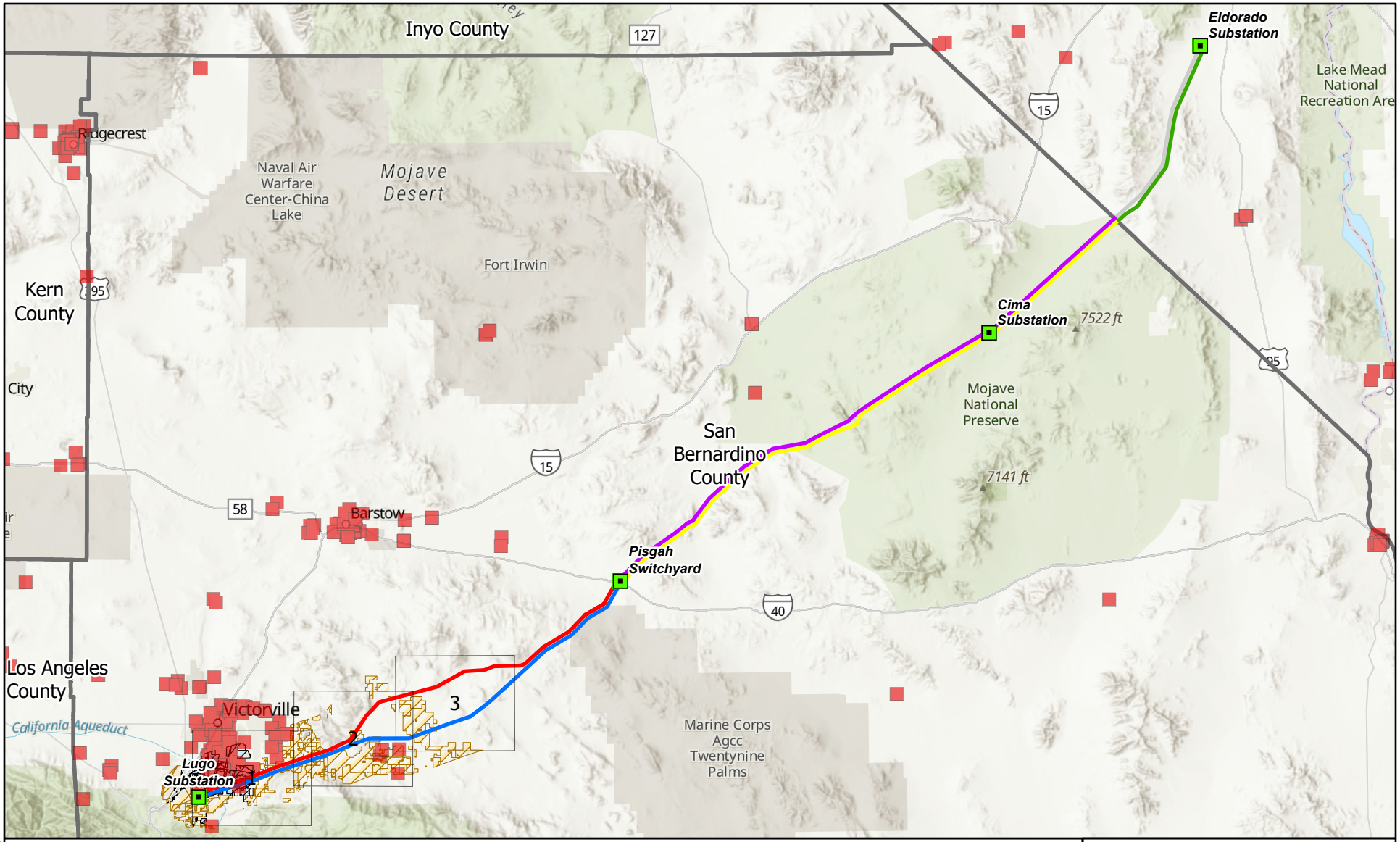
Table 5.13-5. Construction Noise Levels

Equipment Required	Equipment Noise Level (Leq; 50 feet)	Phase Noise Level (Leq; 50 feet)	Phase Duration at Each Location	Receptor Nearest to Construction Phase	Noise Level at Nearest Receptor (Leq)	Exceeds Noise Standard at Nearest Receptor?	Distance to 65 dBA[1]
Water Truck	84						
Manlift/Bucket Truck	85						
Boom/Crane Truck	85						
Auger Truck	84						
Extendable Flat Bed Pole Truck	84						
Restoration							
1-Ton Truck, 4x4	80	91	1 day	Residence, 100 feet from structure to be modified	85	No[a]	1,000
Backhoe/Front Loader	80						
Motor Grader	85						
Water Truck	84						
Drum Type Compactor	85						
Lowboy Truck/Trailer	84						

NOTES:

1. 65 dBA is taken as the noise standard for the EPL Project.

a. Construction work performed in the vicinity of a potential sensitive receptor will be limited to the hours of 0700 and 1900, and will not be performed on Sundays or Federal holidays. Therefore, no exceedance will be realized.



Legend

- Substations
- Segment 1
- Segment 2
- Segment 3
- Segment 4
- Segment 5
- Segment 6
- County Boundary
- Potential Sensitive Receptors
- City of Hesperia Residential
- San Bernardino County Residential

0 15 30
Miles

N

ELDORADO-PISGAH-LUGO 220 kV PROJECT

SENSITIVE RECEPTORS

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.13-1

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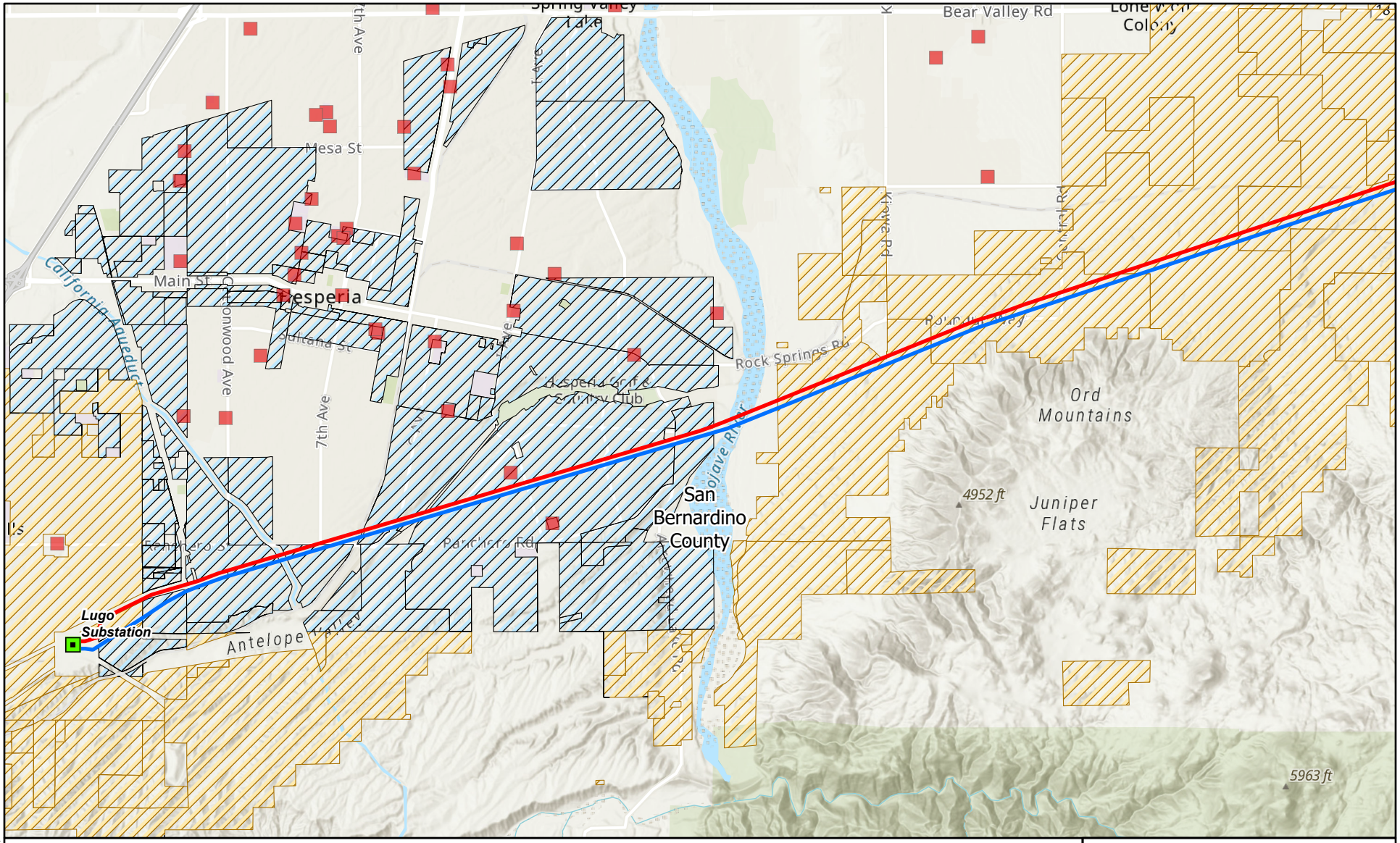

Legend

- Substations
- Segment 1
- Segment 2
- County Boundary
- Potential Sensitive Receptors
- City of Hesperia Residential
- San Bernardino County Residential

Page 1 of 3

0 1 2 Miles

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ELDORADO-PISGAH-LUGO 220 kV PROJECT

SENSITIVE RECEPTORS

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company | ARCADIS

FIGURE 5.13-1

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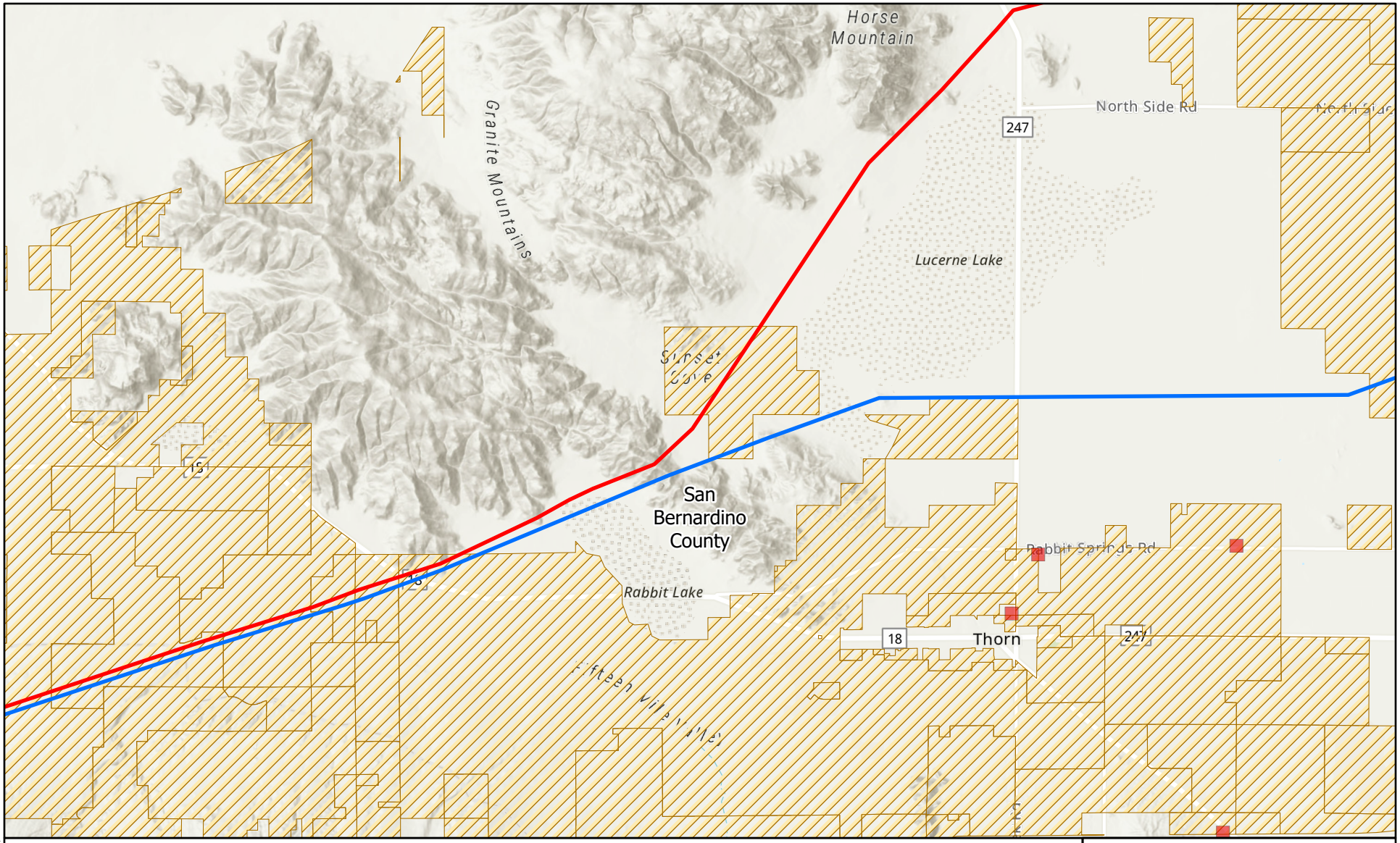

Legend

- Substations
- Segment 1
- Segment 2
- County Boundary
- Potential Sensitive Receptors
- City of Hesperia Residential
- San Bernardino County Residential

Page 2 of 3

0 1 2 Miles

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ELDORADO-PISGAH-LUGO 220 kV PROJECT

SENSITIVE RECEPTORS

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company | ARCADIS

FIGURE 5.13-1

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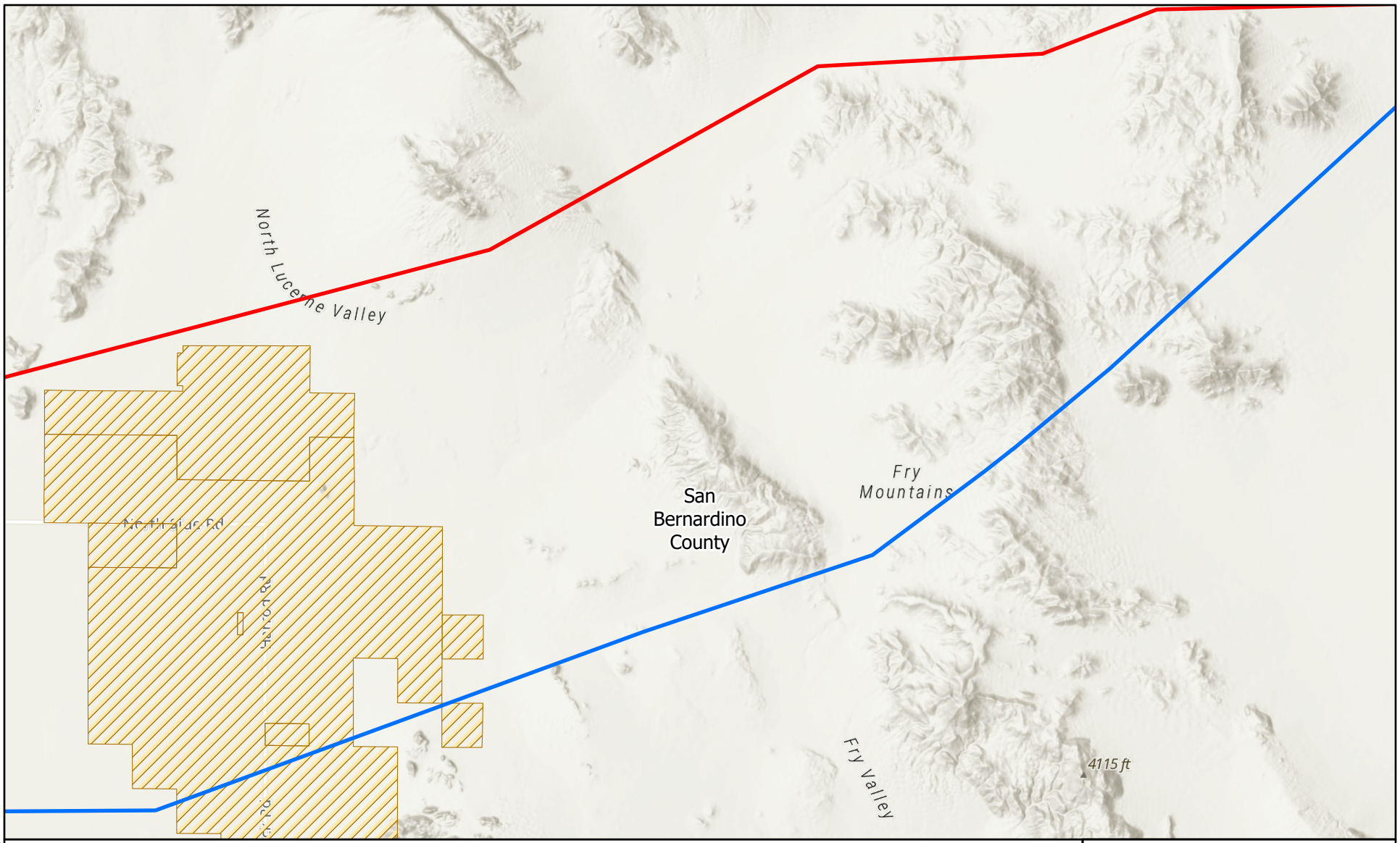

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- Substations
- Segment 1
- Segment 2
- County Boundary
- Potential Sensitive Receptors
- City of Hesperia Residential
- San Bernardino County Residential

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0 1 2
Miles

N

ELDORADO-PISGAH-LUGO 220 kV PROJECT

SENSITIVE RECEPTORS

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.13-1

5.14 Population and Housing

This Section of the PEA describes the population and housing in the area of the EPL Project, as well as the potential impacts.

5.14.1 Environmental Setting

5.14.1.1 Population Estimates

The EPL Project traverses unincorporated areas of San Bernardino County and the City of Hesperia in California, and unincorporated areas of Clark County (NV) and the City of Boulder City (NV) in Nevada; the EPL Project alignment does not cross any Reservation lands. The EPL Project alignment also crosses the Lucerne Valley Census-Designated Place (CDP). Figure 5.14-1 illustrates the location of these areas with respect to the EPL Project alignment. Population and housing data are presented in the following sections for these areas. Population projections were obtained from the California Department of Finance.

5.14.1.1.1 Population Profile

The historical and current populations of cities and counties in the EPL Project area are presented in Table 5.14-1. The California Department of Finance projects that the San Bernardino County population will grow by approximately 9.5 percent over the 2020 to 2030 period. Population projections are not available for the City of Hesperia, the Lucerne Valley CDP, or City of Boulder City (NV). The population of Clark County (NV) is projected to rise to 2,719,000 by 2030 (UNLV 2019).

Table 5.14-1. Population and Housing

	San Bernardino County	City of Hesperia	Lucerne Valley CDP	Clark County (NV)	City of Boulder City (NV)
Population, 2010	2,005,287	86,405	5,613	1,895,521	15,399
Population, 2020	2,162,532	95,163	5,694	2,228,866	16,048
Pop. Below Poverty Level, 2020 (%)	11.8	14.8	27.6	9.8	6.1
Housing, Total	721,376	28,435	2,649	912,465	7,726
Housing, Occupied	640,090	27,207	1,957	809,026	6,556
Housing, Vacant	81,286	1,228	692	103,439	1,170
Rental Vacancy Rate (%)	3.7	2.2	9.0	8.0	4.0

Sources: Census Bureau, 2020: American Community Survey 5-Year Estimates Data Profiles, Tables DP03, DP04, and DP05

5.14.1.2 Housing Estimates

Data on the number of housing units and rental vacancy rates for each of the locations is presented in Table 5.14-1. Short-term lodging is available at numerous hotels and motels at the western end of the EPL Project alignment.

5.14.1.3 Approved Housing Developments

No approved housing developments have been identified within one mile of the EPL Project alignment or any component of the EPL Project.

5.14.2 Regulatory Setting

Federal, State, and local regulations were reviewed for applicability to the EPL Project.

5.14.2.1 Regulatory Setting

5.14.2.1.1 Federal

There are no applicable federal regulations for population and housing that apply to the EPL Project.

5.14.2.1.2 State

There are no applicable state regulations for population and housing that apply to the EPL Project.

5.14.2.1.3 Local

The CPUC has sole and exclusive state jurisdiction over the siting and design of the EPL Project. Pursuant to GO 131-D, Section XIV.B, "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters." Consequently, public utilities are directed to consider local regulations and consult with local agencies, but the county and cities' regulations are not applicable as the county and cities do not have jurisdiction over the EPL Project. Accordingly, the following discussion of local land use regulations is provided for informational purposes only. However, there are no applicable regulations for population and housing that apply to the EPL Project.

5.14.3 Impact Questions

5.14.3.1 Impact Questions

The significance criteria for assessing the impacts to population and housing are derived from the CEQA Environmental Checklist. According to the CEQA Checklist, a project causes a potentially significant impact if it would:

- Induce substantial unplanned population growth in the area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through the extension of new roads or other infrastructure)
- Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere

5.14.3.2 Additional CEQA Impact Questions

There are no CPUC-identified additional CEQA impact questions.

5.14.4 Impact Analysis

5.14.4.1 Impact Analysis

5.14.4.1.1 Would the project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

5.14.4.1.1.1 Construction

No Impact. The EPL Project would not induce, either directly or indirectly, substantial unplanned population growth in the area. SCE expects to utilize approximately 72 workers per day. The labor demands of the EPL Project would be met by existing SCE employees or by hiring specialty electrical transmission contractors. Given the small number of positions required for construction of the EPL

Project and the short term of the construction period in any given location, no population growth would be induced by the EPL Project.

The EPL Project would not indirectly induce an increase in population. The EPL Project is designed to remediate clearance discrepancies; it will not provide new or upgraded electrical service to the area around the EPL Project alignment. In addition, the EPL Project does not include any new infrastructure such as publicly accessible roads that could induce population growth. Therefore, no impacts would occur under this criterion as a result of the EPL Project.

5.14.4.1.1.2 Operations

No Impact. As presented in Chapter 3, SCE is currently performing O&M activities, including inspections, along the transmission lines included under the EPL Project. No material changes in O&M activities are anticipated with implementation of the EPL Project, and therefore no new impacts would be realized under this criterion during operations and maintenance.

5.14.4.1.2 Would the EPL Project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

5.14.4.1.2.1 Construction

No Impact. The EPL Project would not displace any existing housing. The existing transmission lines included under the EPL Project are located within SCE's existing ROW. No housing would be displaced, and thus it would not be necessary to construct replacement housing elsewhere.

5.14.4.1.2.2 Operations

No Impact. As presented in Chapter 3, SCE is currently performing O&M activities, including inspections, along the transmission lines included under the EPL Project. No material changes in O&M activities are anticipated with implementation of the EPL Project, and therefore no new impacts would be realized under this criterion during operations and maintenance.

5.14.4.2 Impacts to Housing

No existing homes occur within the footprint of any proposed EPL Project elements or ROW; the elements of the EPL Project would be constructed within SCE's existing ROW, and therefore no homes could be proposed in those areas. No housing impacts (e.g., demolition and relocation of residents) would occur as a result of the EPL Project.

5.14.4.3 Workforce Impacts

SCE expects to utilize approximately 72 workers per day to support the EPL project. The numbers of construction personnel that may work on the EPL Project and who currently reside within the impact area is unknown and unknowable, as are the numbers of construction personnel who would commute daily to the site from outside the impact area or who would relocate temporarily within the impact area. No permanent employment opportunities would be created by the EPL Project.

5.14.4.4 Population Growth Inducing

Information regarding the EPL Project's growth inducing impacts are addressed in Section 7.2.1.

5.14.5 CPUC Draft Environmental Measures

There are no CPUC Draft Environmental Measures identified for the Population and Housing resource area.

Legend

- Substations
- Segment 1
- Segment 2
- Segment 3
- Segment 4
- Segment 5
- Segment 6
- County Boundary
- Census Designated Place
- City

NOTES:
Sources: https://services.arcgis.com/P3ePLMYs2RVChkJx/ArcGIS/rest/services/USA_Census_Populated_Places/FeatureServer

0 15 30
Miles

N

ELDORADO-PISGAH-LUGO 220 kV PROJECT

CITIES AND CENSUS DESIGNATED PLACES

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.14-1

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5.15 Public Services

This Section of the PEA describes public services in the area of the EPL Project, as well as the potential impacts resulting from construction and operation of the EPL Project.

5.15.1 Environmental Setting

5.15.1.1 Service Providers

5.15.1.1.1 Police

The area along the EPL Project alignment in California is served by the San Bernardino County Sheriff's Department (SBCSD) and the Hesperia Police Department; since 1988, the City of Hesperia has contracted with SBCSD for its police services. The SBCSD employs 3,800 people and has 15 patrol stations and serves over 2.1 million people in San Bernardino County (SBCSD 2018). Response times for the SBCSD are not available on the Department's public-facing website pages.

The area along the EPL Project alignment in Nevada is served by the Las Vegas Metropolitan Police Department (LVMPD) and the Boulder City Police Department (BCPD). The average response time for the LVMPD is 6.8 minutes (LVMPD 2020); response times for the BCPD are not available on the Department's public-facing website pages.

Table 5.15-1 provides a list of the law enforcement stations in the vicinity of Segments 1,2 ,5, and 6; there are no law enforcement stations along or in the near vicinity of Segments 3 and 4.

Table 5.15-1. San Bernardino County Sheriff's Office Stations in Proximity to the EPL Project

Project Segment(s)	Name	Address	Approximate Distance to EPL Project Alignment
1,2	SBCSD Hesperia Patrol Station/ Hesperia Police Department Lamont Station	15840 Smoketree Street, Hesperia	2.6 miles
1,2	SBCSD Lucerne Valley Substation	32818 Verdugo Drive, Lucerne Valley	2.9 miles
5,6	BCPD Station	1005 Arizona Street, Boulder City, NV	15.6
5,6	LVMPD Jean Substation	23600 S Las Vegas Blvd, Jean, NV	18.4

5.15.1.1.2 Fire

The San Bernardino County Fire Department (SBCFD) and the City of Hesperia Fire Department provide fire protection services for the EPL Project area. The SBCFD provides fire, safety, and emergency medical services to more than 60 communities and cities and all unincorporated areas of the county (SBCFD 2018a). The SBCFD serves a population of more than 2.2 million people in an area of more than 19,278 square miles. The SBCFD has more than 1,200 employees and operates 81 fire stations throughout San Bernardino County (SBCFD 2018b). The City of Hesperia Fire Department (CHFD) has three fire department facilities serving the residents of Hesperia. The Boulder City Fire Department provides fire protection services for the EPL Project area in Nevada; the Department has one station. There are no fire stations within one mile of the EPL Project alignment. Response times for the Departments are not available on the Departments' public-facing website pages.

The Bureau of Land Management operates two fire stations in the general vicinity of the EPL Project alignment: the Hole in the Wall Fire Station and the Apple Valley Fire Station (approximately 16 and 10

miles, respectively from the EPL Project alignment). CALFIRE seasonally operates a station in Lucerne Valley. Table 5.15-2 provides a list of the fire stations in the vicinity of Segments 1, 2, 5 and 6; there are no fire stations along or in the near vicinity of Segments 3 and 4.

Table 5.15-2. Fire Stations in Proximity to the EPL Project Alignment

Project Segments	Name	Location	Approximate Distance to EPL Project Alignment
1, 2	SBCFD Station 302	17288 Olive Street, Hesperia	1.6
1, 2	SBCFD Station 305	8331 Caliente Road, Hesperia	2.9
1, 2	SBCFD Station 8	33269 Old Woman Springs Road, Lucerne Valley	2.8
1, 2	CALFIRE Lucerne Valley	33679 Highway 247, Lucerne Valley	2.8
5, 6	BCFD Station	1101 Elm Street, Boulder City	14.6

5.15.1.1.3 Schools

San Bernardino County has 33 school districts; the EPL Project alignment crosses five of these school districts (San Bernardino County Superintendent of Schools [SBCSS] 2018). The Clark County School District operates four schools in the City of Boulder City; none are located nearer than 10 miles to the EPL Project alignment. Table 5.15-3 provides an overview of the schools, locations, district, grades, as well as the approximate distance of each school from the EPL Project alignment.

Table 5.15-3. Schools in Proximity to the EPL Project

Project Segments	Name	Address	School District	Grades	Approximate Distance to the EPL Project Alignment
1, 2	Lime Street Elementary School	16852 Lime Street, Hesperia	Hesperia Unified School District	K-6	1 mile
1, 2	Krystal School of Science, Math and Technology	17160 Krystal Drive, Hesperia	Hesperia Unified School District	K-6	0.7 miles
1, 2	Ranchero Middle School	17607 Ranchero Road, Hesperia	Hesperia Unified School District	7-8	0.7 miles
1, 2	LaVerne Elementary Preparatory Academy	7280 Oxford Avenue, Hesperia	Hesperia Unified School District	K-6	0.7 miles
1, 2	Kingston Elementary School	7473 Kingston Avenue, Hesperia	Hesperia Unified School District	K-6	0.5 miles

5.15.1.1.4 Parks

Public parks, open spaces, and recreational areas in the vicinity of the EPL Project components are described in Section 5.16, Recreation of this PEA.

In San Bernardino County, the Regional Parks Department manages and maintains nine regional parks totaling approximately 9,200 acres. Each park offers diverse outdoor recreation opportunities in settings that range from metro, mountain, and desert scenery (San Bernardino County Regional Parks Department 2018). The closest regional parks in San Bernardino County to the EPL Project are the Mojave River

Forks Regional Park and the Mojave Narrows Regional Park, which are approximately 4.5 miles and 7.5 miles, respectively, from the EPL Project alignment.

The Hesperia Recreation and Park District is an independent special district within the City of Hesperia. The Hesperia Recreation and Park District maintains retention basins, public landscaping, street lights, and parks within the City. There are a total of 14 parks and recreational facilities throughout the City; the nearest is Hesperia Lake Park, located approximately 0.7 miles south of the EPL Project alignment.

The City of Boulder City's Department of Parks & Recreation operates 22 facilities within the City; the nearest is approximately 14 miles from the EPL Project alignment.

5.15.1.1.5 Hospitals

The closest major hospital is the Desert Valley Hospital in Victorville, which is located approximately 5.4 miles from the EPL Project. This hospital is depicted on Figure 5.15-1.

5.15.2 Regulatory Setting

Federal, State, and local regulations were reviewed for applicability to the EPL Project.

5.15.2.1 Regulatory Setting

5.15.2.1.1 Federal

No Federal regulations related to public services are applicable to the EPL Project.

5.15.2.1.2 State

5.15.2.1.2.1 California Fire Code

The California Code of Regulations (CCR), Title 24, Part 9 is known as the California Fire Code. This code provides provisions for planning, precautions, and preparations for fire safety and fire protection during various activities, including, but not limited to, construction and demolition, as well as requirements for buildings and guidelines for working with flammable chemicals and materials. The western portions of Segments 1 and 2 of the EPL Project are located in areas that range from moderate to high fire hazard potential (CAL FIRE 2007). As such, the California Fire Code was reviewed for this analysis.

5.15.2.1.2.2 California Public Resources Code Sections 4292 and 4293

California Public Resources Code (CPRC) Section 4292 states:

> [A]ny person that owns, controls, operates, or maintains any electrical transmission or distribution line…shall, during such times and in such areas as are determined to be necessary by the director or the agency, has primary responsibility for fire protection of such areas, maintain around and adjacent to any pole or tower which supports a switch, fuse, transformer, lightening arrester, line junction, or dead end or corner pole, a firebreak which consists of a clearing of not less than 10 feet in each direction from the outer circumference of such a pole or tower (CPRC 4292).

CPRC Section 4293 states:

> [A]ny person that owns, controls, operates, or maintains any electrical transmission or distribution line upon any mountainous land, or in forest-covered land, or grass-covered land shall, during such times and in such areas as are determined to be necessary by the director or the agency which has primary responsibility for the fire protection of such area, maintain a clearance

of the respective distances which are specified in this section in all directions between all vegetation and all conductors which are carrying electric current:

(a) For any line which is operating at 2,400 or more volts, but less than 72,000 volts, four feet

(b) For any line which is operating at 72,000 or more volts, but less than 110,000 volts, six feet

(c) For any line which is operating at 110,000 or more volts, 10 feet

In every case, such distance shall be sufficiently great to furnish the required clearance at any position of the wire, or conductor when the adjacent air temperature is 120 degrees Fahrenheit, or less. Dead trees, old decadent or rotten trees, trees weakened by decay or disease and trees or portions thereof that are leaning toward the line which may contact the line from the side or may fall on the line shall be felled, cut, or trimmed so as to remove such hazard (CPRC 4293).

5.15.2.1.2.3 Red Flag Fire Warning and Weather Watches

Like CPRC Sections 4292 and 4293, red-flag warnings and fire-weather watches aim to prevent fire events and reduce the potential for substantial damage. When extreme fire weather or behavior is present or predicted in an area, a red-flag warning or fire-weather watch may be issued to advise local fire agencies that these conditions are present.

5.15.2.1.3 Local

The CPUC has sole and exclusive state jurisdiction over the siting and design of the EPL Project. Pursuant to GO 131-D, Section XIV.B, "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters." Consequently, public utilities are directed to consider local regulations and consult with local agencies, but the county and cities' regulations are not applicable as the county and cities do not have jurisdiction over the EPL Project. Accordingly, the following discussion of local land use regulations is provided for informational purposes only.

5.15.2.1.3.1 San Bernardino County Countywide Plan

The Personal & Property Protection Element of the Countywide Plan contains goals and policies for fire protection and emergency response. The Element contains goals to protect residents and visitors from injury and loss of life, and to protect property from fires. The Element does not contain any specific goals or policies that are relevant to the Proposed Project.

5.15.2.1.3.2 City of Hesperia General Plan 2010

The Safety Element seeks to protect life and property from impacts associated with natural and man-made disasters. To that end, the Safety Element: 1) identifies the potential hazards that can significantly impact the City of Hesperia, 2) provides policies that if implemented can minimize the potential risk to residents, workers and visitors; 3) provides policies that if implemented can reduce the losses to property resulting from a given disaster; and 4) identifies procedures that the City can use to respond to emergency situations. Investing in public safety helps make the community more sustainable, viable and prosperous. The Safety Element does not contain any specific goals or policies that are relevant to the Proposed Project.

5.15.2.1.3.3 City of Boulder City Master Plan

Policy PF 2: Definition of Adequate Urban Facilities and Services Standards states

> The city should ensure that standards are established for all public facilities and services, including but not limited to fire protection and emergency services, parks, utilities, and transportation. These standards shall define the specified levels of service that are necessary and appropriate to meet the needs of city residents.

5.15.3 Impact Questions

5.15.3.1 Impact Questions

The significance criteria for assessing the impacts to public services are derived from the CEQA Environmental Checklist. According to the CEQA Checklist, a project causes a potentially significant impact if it would result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

- fire protection
- police protection
- schools
- parks
- other public facilities

5.15.3.2 Additional CEQA Impact Questions

There are no CPUC-identified additional CEQA impact questions.

5.15.4 Impact Analysis

5.15.4.1 Impact Analysis

5.15.4.1.1 Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives?

5.15.4.1.1.1 Construction

No Impact. The EPL Project would not affect service ratios, response times, or other objectives for public services in the area. Fire, emergency, and police services currently serve, and would continue to serve, the areas in which the transmission lines are located.

The EPL Project would not require the expansion of fire protection services. Work areas would be cleared of vegetation, or have vegetation trimmed, before staging construction equipment, thus minimizing the probability of fire during construction. Although the need for emergency services may arise during construction of the EPL Project, such a need would not substantially affect the provision of existing emergency services or require the provision of service beyond existing capacities.

Ingress and egress of emergency vehicles would not be impeded during construction and operation, nor is construction anticipated to affect response times. Any lane or road closures, if necessary, would be temporary and would be coordinated with local jurisdictions, and traffic control would be implemented as necessary (see Section 5.17 and Section 3.11).

It is not anticipated that the EPL Project would adversely affect the use or operation of any public services or facilities in the vicinity of the EPL Project alignment, including schools, fire and police protection services, emergency services, hospitals, or other services. Construction of the EPL Project would not generate the need for new or additional public services such as school or other facilities because it would not result in construction of residential or other land uses that would directly or indirectly induce population growth in the area. Therefore, no impacts on public services are anticipated during construction of the EPL Project.

5.15.4.1.1.2 Operations

No Impact. As presented in Chapter 3, SCE is currently performing O&M activities, including inspections, along the transmission lines included under the EPL Project. No material changes in O&M activities are anticipated with implementation of the EPL Project, and therefore no new impacts would be realized under this criterion during operations and maintenance.

5.15.4.2 Emergency Response Times

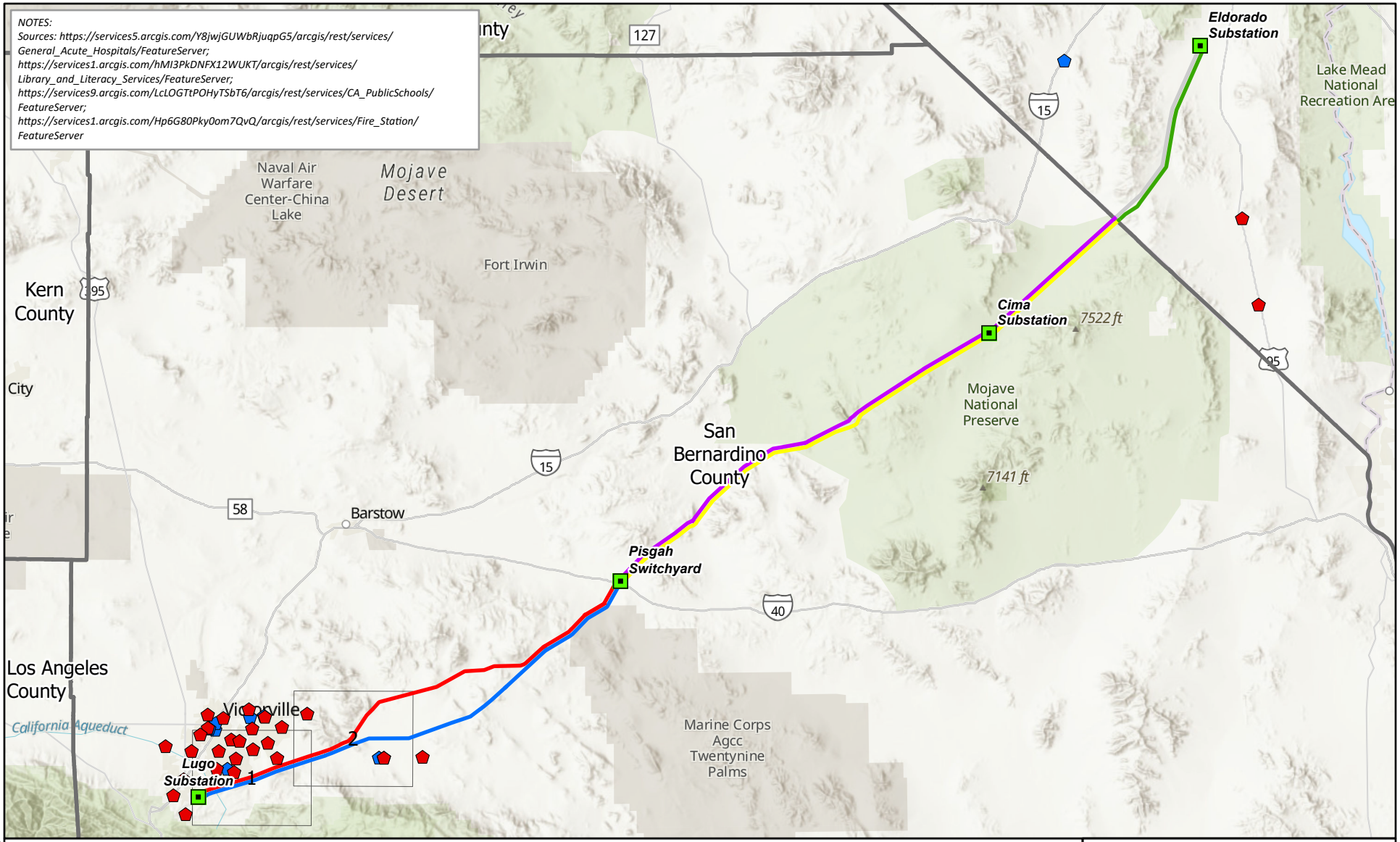
No impacts on emergency response times during project construction and operation are anticipated as addressed above in Section 5.15.4.1.1.1.

5.15.4.3 Displaced Population

As presented above in Section 5.14, the EPL Project would not displace any people or populations.

5.15.5 CPUC Draft Environmental Measures

There are no CPUC Draft Environmental Measures identified for the Public Services resource area.



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ELDORADO-PISGAH-LUGO 220 kV PROJECT

PUBLIC SERVICES IN THE PROPOSED PROJECT VICINITY

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FIGURE 5.15-1

5.16 Recreation

This Section of the PEA describes recreation in the vicinity of the EPL Project, as well as the potential impacts that could result from construction and operation of the EPL Project.

5.16.1 Environmental Setting

5.16.1.1 Recreational Setting

The Environmental Setting section describes the existing conditions for recreation in the vicinity of the EPL Project. The EPL Project is located in unincorporated San Bernardino County and in the City of Hesperia in California and in unincorporated Clark County and in the City of Boulder City in Nevada. The land along and proximate to the EPL Project alignment is primarily open space. Residential land uses are scattered along the EPL Project alignment, but are generally concentrated along the western portion of Segments 1 and 2 in the City of Hesperia and in the Lucerne Valley. The majority of the EPL Project alignment is located on public lands, including those managed by the BLM and the NPS. Generally, dispersed recreation on public lands is the principal recreational opportunity available to visitors within the vicinity of the EPL Project alignment; few developed recreational areas are present along the EPL Project alignment.

Parks and recreation areas were identified by reviewing city and county planning documents, along with federal land management documents. Parks and recreation areas are identified and discussed by jurisdiction. Locations of parks and recreation areas are shown on Figure 5.16-1.

5.16.1.1.1 Mojave National Preserve

The EPL Project traverses the Mojave National Preserve (Preserve) for approximately 104 miles. The Preserve has been managed by the NPS since 1994. Prior to 1994, the area was managed by the BLM as the East Mojave National Scenic Area.

The Mojave National Preserve General Management Plan is the Preserve's overall management strategy (NPS 2002). The plan focuses on the park's purposes, its significant attributes, its mission in relation to the overall mission of the NPS, what activities are appropriate within these constraints, and resource protection strategies. It provides guidelines for visitor use and development of facilities for visitor enjoyment and administration of the Preserve.

There are few developed recreational areas within the Preserve; none are within 5 miles of the EPL Project alignment. The General Management Plan's Facilities and Development management goal is to minimize development of new facilities and new development, including the proliferation of signs, new campgrounds, and outdoor interpretive exhibits.

Most use in the Preserve is sightseeing and driving for recreation, but the diverse landscape offers many other forms of recreation including hunting, nature study, rock-climbing, mountain biking, exploring by four-wheel-drive (4WD) vehicle, hiking, and back-country camping and car camping.

5.16.1.1.2 Bureau of Land Management

The EPL Project traverses a number of BLM-managed lands that are utilized for recreation. The eastern portions of Segments 1 and 2 and the western portions of Segments 3 and 4 in the vicinity of Pisgah Switchyard are located in the Mojave Trails National Monument. The Monument comprises approximately 1.6 million acres; recreational opportunities in the Monument include auto touring, biking, climbing, historical and cultural sites, camping, hiking, horseback riding, hunting, picnicking, wildlife viewing, wilderness, environmental education, and photography. There are few developed recreational areas within the Monument; none are proximate to the EPL Project alignment.

The EPL Project alignment crosses or is adjacent to the Stoddard-Johnson Special Recreation Management Area (SRMA), the Johnson Valley Shared OHV SRMA, the Crucero Valley Extensive Recreation Management Area (ERMA), and the Southern Nevada ERMA. There are no developed recreational facilities within these areas within 1 mile of the EPL Project alignment.

5.16.1.1.3 San Bernardino County

The San Bernardino Department of Regional Parks manages nine regional parks throughout the County; none are located in the vicinity (less than one mile) of the EPL Project alignment (Table 5.16-1).

5.16.1.1.4 City of Hesperia

The City of Hesperia and the Hesperia Recreation and Park District (HRPD) share responsibilities to provide open space recreation and activities, with most public recreational facilities provided by the HRPD. Facilities operated by HRPD and located within approximately one mile of the EPL Project include Hesperia Lake Park, Hesperia Golf and Country Club, Lime Street Park, and Maple Avenue Park, as shown on Figure 5.16-1. The City of Hesperia identifies three types of bike paths, including Class One, which denotes a dedicated bike path outside the street vehicular right-of-way. There are no Class One bike paths in the vicinity of the EPL Project; however, several are proposed. The EPL Project alignment crosses or is proximate to Class Two bike paths within the City (City of Hesperia 2018).

Table 5.16-1. Parks and Recreation Areas Within One Mile of the EPL Project

Project Segment	Name	Management Entity	Distance from Project Alignment (miles)
1, 2	Hesperia Lake Park	HRPD	0.6
1, 2	Hesperia Golf and Country Club	HRPD	0.7
1, 2	Lime Street Park	HRPD	1.2
1, 2	Maple Avenue Park	HRPD	0.9

Hesperia Lake Park is the primary regional park in the area. It is 200 acres and has the following amenities: playground, restrooms, lake fishing, picnic areas, soccer fields, equestrian area, campground, and museum. The Hesperia Golf and Country Club provides recreational amenities for the city and region. Lime Street Park is 20 acres and has the following amenities: playground, restrooms, basketball court, picnic areas, swimming pool, tennis courts, ballfields, rodeo and equestrian area, and community buildings. Maple Avenue Park is 40 acres and has one soccer field.

There is an established equestrian trail located along the EPL Project alignment in the western portion of Segments 1 and 2; the trail runs from the Burlington Northern Santa Fe (BNSF) Railroad and Ranchero Road to the Mojave River.

5.16.1.1.5 City of Boulder City (NV)

The City of Boulder City's Department of Parks & Recreation operates 22 facilities within the City; the nearest is approximately 14 miles from the EPL Project alignment.

5.16.2 Regulatory Setting

Federal, State, and local regulations were reviewed for applicability to the EPL Project.

5.16.2.1 Regulatory Setting

5.16.2.1.1 Federal

5.16.2.1.1.1 BLM Desert Renewable Energy Conservation Plan, Land Use Plan Amendment (DRECP LUPA)

The DRECP LUPA includes two types of recreation designations: Special Recreation Management Areas (SRMAs) and Extensive Recreation Management Areas (ERMAs).

SRMA-designated lands are recognized and managed for their recreation opportunities, unique value, and importance. SRMAs are high-priority areas for outdoor recreation as defined in the BLM Land Use Planning Handbook H-1601-1 (2005). It is a public lands unit identified in land use plans to direct recreation funding and personnel to manage for a specific set of recreation activities, experiences, opportunities, and benefits. Both land use plan decisions and subsequent implementing actions for recreation in each SRMA are geared to a strategically identified primary market—destination, community, or undeveloped areas.

ERMA-designated lands require specific management consideration in order to address recreation use and demand. The ERMAs are managed to support and sustain the principal recreation activities and associated qualities and conditions. Recreation management actions within an ERMA are limited to only those of a custodial nature. Management of ERMA areas are commensurate with the management of other resources and resource uses.

5.16.2.1.1.2 Mojave National Preserve Land Management Plan

The Mojave National Preserve Land Management Plan describes the strategic direction at the broad program level for managing the land and protecting its resources. The Plan refers to pre-existing and authorized land uses on the Preserve such as electric transmission lines (Southern California Edison is referenced specifically on Figure 9 – Major Rights-of-Way). It is stated that such easements do not conform well with the mission NPS has and may interfere with the NPS' vision of the visitor experience; however, the use is pre-existing and authorized.

NPS determines which recreational activities are appropriate at a unit-level (i.e., Mojave National Preserve here as the unit), based upon the unit's purposes and values. For the Preserve, this includes various recreational pursuits with certain exclusions and restrictions.

5.16.2.1.2 State

There are no state regulations pertaining to the EPL Project and this resource area.

5.16.2.1.3 Local

The CPUC has sole and exclusive state jurisdiction over the siting and design of the EPL Project. Pursuant to GO 131-D, Section XIV.B, "Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters." Consequently, public utilities are directed to consider local regulations and consult with local agencies, but the county and cities' regulations are not applicable as the county and cities do not have jurisdiction over the EPL Project. Accordingly, the following discussion of local land use regulations is provided for informational purposes only.

5.16.2.1.3.1 San Bernardino County Countywide Plan

The San Bernardino County Countywide Plan contains a number of goals related to parks and recreational facilities; none are relevant to the EPL Project.

5.16.2.1.3.2 City of Hesperia General Plan 2010

The City of Hesperia General Plan contains a number of goals related to parks and recreational facilities; none are relevant to the EPL Project.

5.16.2.1.3.3 City of Boulder City (NV) Master Plan

The City of Boulder City (NV) General Plan contains a number of policies related to parks and recreational facilities; none are relevant to the EPL Project.

5.16.3 Impact Questions

5.16.3.1 Impact Questions

The significance criteria for assessing the impacts to recreational resources are derived from the CEQA Environmental Checklist. According to the CEQA Checklist, a project causes a potentially significant impact if it would:

- Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated
- Include recreational facilities, or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment

5.16.3.2 Additional CEQA Impact Questions

The CPUC has identified additional CEQA significance criteria. According to these additional CEQA significance criteria, a project causes a potentially significant impact if it would:

- Reduce or prevent access to a designated recreation facility or area
- Substantially change the character of a recreational area by reducing the scenic, biological, cultural, geologic, or other important characteristics that contribute to the value of recreational facilities or areas
- Damage recreational trails or facilities?

5.16.4 Impact Analysis

5.16.4.1 Impact Analysis

5.16.4.1.1 Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

5.16.4.1.1.1 Construction

No Impact. The use of parks and recreational facilities is closely tied to population; as population increases, the use of existing parks and recreational facilities can be expected to increase proportionally. Similarly, the loss of existing parks and recreational facilities would result in a concentration of use at remaining parks and facilities.

As presented in the Population and Housing section (Section 5.14), the EPL Project would not directly or indirectly induce any population growth. During construction, local parks may be used by workers during

their lunch or break periods; the short duration of construction activities and the small number of construction workers would not result in a significant increase in the use of existing parks or recreational facilities.

The limited increase in the use of parks and recreational facilities by workers during construction and the lack of population growth resulting from the EPL Project would not result in either a significant increase in the use of existing parks or recreational facilities or the occurrence or acceleration of substantial physical deterioration to existing parks and recreational facilities. Therefore, no impacts would occur under this criterion.

5.16.4.1.1.2 Operations

No Impact. As presented in Chapter 3, SCE is currently performing O&M activities, including inspections, along the transmission lines included under the EPL Project. No material changes in O&M activities are anticipated with implementation of the EPL Project, and therefore no new impacts would be realized under this criterion during operations and maintenance.

5.16.4.1.2 Would the project include recreational facilities, or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?

5.16.4.1.2.1 Construction

No Impact. The EPL Project does not include any recreational facilities. The EPL Project is not expected to result in a population increase and would not require the construction or expansion of any recreational facilities. As a result, there would be no adverse physical effect on the environment from the construction of new, or expansion of existing, recreational facilities. Therefore, no impacts would occur under this criterion.

5.16.4.1.2.2 Operations

No Impact. As presented in Chapter 3, SCE is currently performing O&M activities, including inspections, along the transmission lines included under the EPL Project. No material changes in O&M activities are anticipated with implementation of the EPL Project, and therefore no new impacts would be realized under this criterion during operations and maintenance.

5.16.4.1.3 Would the project reduce or prevent access to a designated recreation facility or area?

5.16.4.1.3.1 Construction

Less than Significant Impact. There are no designated recreational facilities located within any construction work area associated with the EPL Project alignment. Some recreational facilities can be accessed using the access roads identified for use under the EPL Project, and portions of the SRMAs and the ERMAs crossed by the EPL Project alignment can be accessed using the access roads identified for use under the EPL Project. During construction, portions of some access roads on public lands would be closed or vehicle movements would be controlled; this may reduce, in the short-term, access to a recreational area, but would not prevent access. Further, no designated recreational facility or area is accessed solely along an access road that may be closed or on which vehicle movements would be controlled. Therefore, impacts would be less than significant.

5.16.4.1.3.2 Operations

No Impact. As presented in Chapter 3, SCE is currently performing O&M activities, including inspections, along the transmission lines included under the EPL Project. No material changes in O&M

activities are anticipated with implementation of the EPL Project, and therefore no new impacts would be realized under this criterion during operations and maintenance.

5.16.4.1.4 Would the project substantially change the character of a recreational area by reducing the scenic, biological, cultural, geologic, or other important characteristics that contribute to the value of recreational facilities or areas?

5.16.4.1.4.1 Construction

No Impact. There are no designated recreational facilities located within any construction work area associated with the EPL Project alignment, and therefore the EPL Project would not substantially change the character of any designated recreational facilities.

The EPL Project alignment is located in or adjacent to areas that are or may be used for dispersed recreation. The EPL Project would not substantially change the character of any recreational area. In the Mojave National Preserve and in the ERMAs, the EPL Project includes replacing existing conductor with new conductor on existing structures; as presented elsewhere in this document, this work would not result in any significant impacts related to scenic, biological, cultural, geologic, or other important resources, and therefore the replacement of conductor would not change the character of the Mojave National Preserve or the ERMAs.

In and adjacent to the Stoddard-Johnson SRMA and the Johnson Valley Shared OHV SRMA, the EPL Project includes replacing existing conductor with new conductor on existing structures, replacing the hardware on existing structures, and installing new inter-set structures. As presented elsewhere in this document, this work would not result in any significant impacts related to scenic, biological, cultural, geologic, or other important resources, and therefore the replacement of conductor would not substantially change the character of the SRMAs. Therefore, because no substantial changes to the character of any recreational facilities or area would be associated with the EPL Project, no impacts would occur under this criterion.

5.16.4.1.4.2 Operations

No Impact. As presented in Chapter 3, SCE is currently performing O&M activities, including inspections, along the transmission lines included under the EPL Project. No material changes in O&M activities are anticipated with implementation of the EPL Project, and therefore no new impacts would be realized under this criterion during operations and maintenance.

5.16.4.1.5 Would the project damage recreational trails or facilities?

5.16.4.1.5.1 Construction

No Impact. EPL Project components do not intersect any identified recreational trails, and no components of the EPL Project are located on a recreational facility. Therefore, no impacts would occur under this criterion.

5.16.4.1.5.2 Operations

No Impact. As presented in Chapter 3, SCE is currently performing O&M activities, including inspections, along the transmission lines included under the EPL Project. No material changes in O&M activities are anticipated with implementation of the EPL Project, and therefore no new impacts would be realized under this criterion during operations and maintenance.

5.16.4.2 Impact Details

The maximum extent of each impact, and when and where the impacts would or would not occur, are identified in Section 5.16.4.1.3.1 above.

5.16.5 CPUC Draft Environmental Measures

There are no CPUC Draft Environmental Measures identified for the Recreation resource area.

Legend

- Substations
- Segment 1
- Segment 2
- Segment 3
- Segment 4
- Segment 5
- Segment 6
- Parks

0 15 30

Miles

N

ELDORADO-PISGAH-LUGO 220 kV PROJECT

PARKS AND RECREATIONAL FACILITIES

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company

ARCADIS

FIGURE 5.16-1

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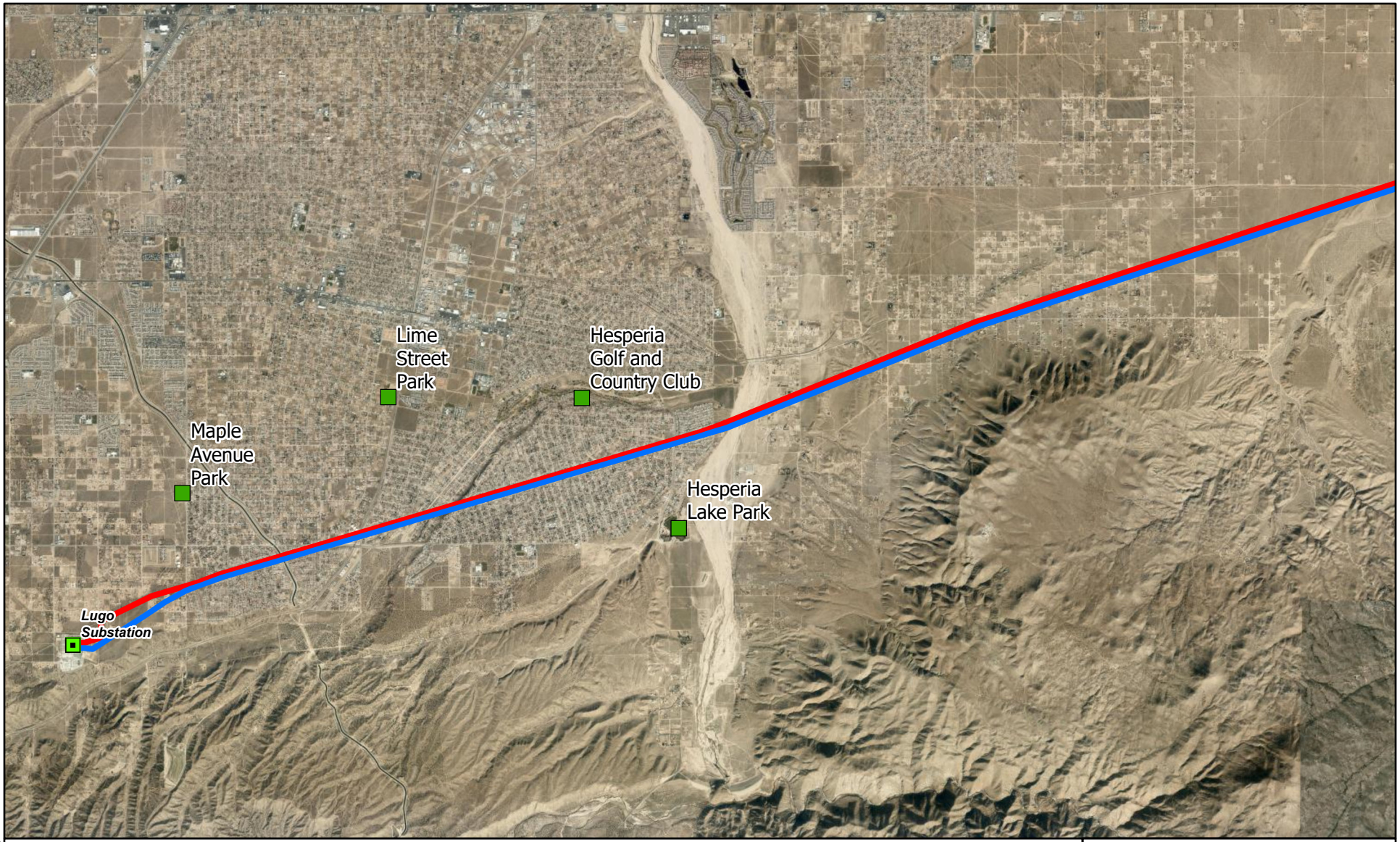

Legend

- Substations
- Segment 1
- Segment 2
- Segment 3
- Segment 4
- Segment 5
- Segment 6
- Parks

Page 1 of 1

0 1 2
Miles

N

ELDORADO-PISGAH-LUGO 220 kV PROJECT

PARKS AND RECREATIONAL FACILITIES

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.16-1

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5.17 Transportation

This Section of the PEA describes transportation in the vicinity of the EPL Project, as well as the potential impacts that could result from construction and operation of the EPL Project.

5.17.1 Environmental Setting

The environmental setting section describes the existing conditions for transportation in the EPL Project area. The EPL Project is located within unincorporated San Bernardino County and in the City of Hesperia in California, and in unincorporated Clark County and in the City of Boulder City in Nevada.

The predominant land use in all Segments is open space. Scattered rural residential areas are found along the western portion of Segments 1 and 2, with suburbanized developments found within the City of Hesperia. Commercial and industrial land uses proximate to the EPL Project alignment are largely confined to the City of Hesperia and surrounding area in the western portions of Segments 1 and 2 and at the eastern end of Segments 5 and 6 in the City of Boulder City (NV). Figure 5.17-1 illustrates the transportation-related infrastructure discussed in the following sections.

5.17.1.1 Circulation System

The EPL Project traverses portions of unincorporated San Bernardino County and is located within portions of or proximate to the City of Hesperia in California, and traverses portions of unincorporated Clark County and the City of Boulder City in Nevada. The regional circulation system is comprised of interstate highways, state highways, and county and local roads. Interstate 15 (I-15) and I-40, US Route 95, California State Route 18 (SR-18) and SR-247, and Nevada State Route 164 provide regional access to and through the area.

5.17.1.2 Existing Roadways and Circulation

The existing paved roadways that may be used to access the EPL Project alignment and transport materials during construction, or that are otherwise adjacent to or crossed by the EPL Project alignment, are presented in Table 5.17-1 and shown on Figure 5.17-1.

Table 5.17-1. Existing Roadways

Roadway	Jurisdiction/ Ownership	Number of Lanes	Traffic Volume (Annual Average Daily Traffic [AADT])[1]	Closest Project Feature/ Distance (miles)
Segments 1 and 2				
Escondido Avenue	San Bernardino County	2	5,356	Segments 1 and 2 / 0
Seventh Avenue	San Bernardino County	2	NA	Segments 1 and 2 / 0
Ranchero Road	San Bernardino County	4	9,508 – 10,282	Segments 1 and 2 / 0
Roundup Way	San Bernardino County	2	742 – 6,609	Segments 1 and 2 / 0
Central Road	San Bernardino County	2	NA	Segments 1 and 2 / 0
Ocotillo Way	San Bernardino County	2	895	Segments 1 and 2 / 0
Milpas Drive	San Bernardino County	2	815 – 872	Segments 1 and 2 / 0
SR-18	State	2	5,400 – 11,200	Segments 1 and 2 / 0
Cove Road	San Bernardino County	2	351 – 435	Segments 1 and 2 / 0
SR-247/Barstow Road	State	2	2,500 – 2,800	Segments 1 and 2 / 0
Northside Road	San Bernardino County	2	44 – 141	Segment 1 / 0.1
Huff Road	San Bernardino County	2	44	Segment 1 / 0
Camp Rock Road	San Bernardino County	2	507 – 1,268	Segment 2 / 0
Route 66	State	2	53	Segments 1 and 2 / 0

Table 5.17-1. Existing Roadways

Roadway	Jurisdiction/ Ownership	Number of Lanes	Traffic Volume (Annual Average Daily Traffic [AADT])[1]	Closest Project Feature/ Distance (miles)
I-40	State	4	12,700 – 21,800	Segments 1 and 2 / 0
Pisgah Road	San Bernardino County	2	NA	Segments 1 and 2 / 0
Segments 3 and 4				
Kelbaker Road	San Bernardino County	2	85 – 477	Segments 3 and 4 / 0
Cima Road	San Bernardino County	2	26 – 1,718	Segment 3 and 4 / 0
Morning Star Mine Road	San Bernardino County	2	NA	Segment 3 and 4 / 0
Ivanpah Road	San Bernardino County	2	415	Segment 3 and 4 / 0
Nipton Road	San Bernardino County	2	826 – 995	Segment 3 and 4 / ~1
Segments 5 and 6				
Nevada State Route 164	Clark County	4	NA	Segment 5 and 6 / 0
US Route 95	Clark County	2	NA	Segment 5 and 6 / ~3
1. AADT data provided by San Bernardino County, Department of Public Works				

5.17.1.3 Transit and Rail Services

The Victor Valley Transit Authority (VVTA) provides bus service in, and in the vicinity of, the City of Hesperia. VVTA Route 23 (Apple Valley Post Office - Lucerne Valley) uses SR-18, which is crossed by Segments 1 and 2. VVTA Route 25 (Hesperia Post Office - Super Target) and Route 66 (Hesperia East Deviation) operate in the City of Hesperia in the vicinity of the western portions of Segments 1 and 2 (Table 5.17-2, Figure 5.17-2). Operating hours for these routes are presented in Table 5.17-2.

There are two railroads in the vicinity of the EPL Project. Burlington Northern and Santa Fe Railway (BNSF) and Union Pacific Railroad (UPRR) operate lines in the vicinity of the EPL Project; Segments 1 and 2 of the EPL Project alignment cross rail lines at five locations and Segments 3 and 4 cross rail lines at two locations.

Table 5.17-2. Bus Routes and Frequencies

Route	Roadway(s) Traversed	Frequency	Hours of Operation
23	SR-18	Daily	0518 – 2055 (weekdays) 0700 – 2055 (weekends)
25	None along the EPL Project alignment	Daily	0756 – 2030 (weekdays) 0758 – 1922 (weekends)
66	None along the EPL Project alignment	Daily	0615 – 2119 (weekdays) 0715 – 1803 (weekends)

Source: VVTA 2022

5.17.1.4 Bicycle Facilities

The EPL Project alignment is located within Caltrans District 8. Bicyclists are permitted on certain Caltrans District 8 highway routes: On SR-18 and SR-247, bicyclists are permitted to use the shoulder; on portions of I-15 and I-40 in the vicinity of the EPL Project bicyclists are primarily prohibited, while freeway shoulders are open for bicyclist use in other locations (Caltrans 2017). There are no defined or proposed bikeways in the vicinity of the EPL Project alignment in San Bernardino County; the alignment crosses or is proximate to Class Two bikeways in the western portion of Segments 1 and 2 within the City of Hesperia (Figure 5.17-3). US Route 95 is listed as a US Alternative Bicycle Corridor (NDOT 2013).

5.17.1.5 Pedestrian Facilities

The EPL Project alignment crosses numerous streets that are identified in the SBCTA's Active Transportation Plan (ATP) and SBCTA's Comprehensive Sidewalk Connectivity Inventory Plan as having sidewalks (Figure 5.17-4). No pedestrian facilities are crossed by the EPL Project alignment in Nevada.

5.17.1.6 Vehicle Miles Traveled (VMT)

VMT data is provided in Section 5.17.4.2.

5.17.2 Regulatory Setting

Federal, State, and local regulations were reviewed for applicability to the EPL Project.

5.17.2.1 Regulatory Setting

5.17.2.1.1 Federal

CFR Title 49, Subtitle B includes procedures and regulations pertaining to interstate and intrastate transport (including hazardous materials program procedures) and provides safety measure for motor carriers and motor vehicles that operate on public highways.

All airports and navigable airspace not administered by the Department of Defense are under the jurisdiction of the FAA. CFR Title 14, Section 77 establishes the standards and required notification for objects affecting navigable airspace. In general, construction projects exceeding 200 feet in height above ground or extending at a ratio greater than 50 to 1 (horizontal to vertical) from a public or military airport runway less than 3,200 feet long out to a horizontal distance of 20,000 feet are considered potential obstructions and require notification to the FAA. For helicopters, 1 vertical foot for every 25 horizontal feet for a horizontal distance of 5,000 feet. In addition, the FAA requires a Helicopter Lift Plan for operating a helicopter within 1,500 feet of residences.

5.17.2.2 State

5.17.2.2.1 California Department of Transportation

Caltrans manages state highways in California. The use of California state highways for reasons other than normal transportation purposes may require written authorization or an encroachment permit from Caltrans. Caltrans has jurisdiction over the state's highway system and is responsible for protecting the public and infrastructure. Caltrans reviews all requests from utility companies that plan to conduct activities within its rights-of-way. Encroachment permits may include conditions or restrictions that limit when construction activities can occur within or above roadways under the jurisdiction of Caltrans.

Caltrans prepared a document, Guide for the Preparation of Traffic Studies (2002) that describes when a traffic impact study is needed. The intent of this guide is to provide a starting point and a consistent basis for Caltrans' evaluation of traffic impacts to State highway facilities. The applicability of the guide for local streets and roads (non-State highways) is at the discretion of the effected jurisdiction.

5.17.2.2.2 California Transportation Commission

The California Transportation Commission (CTC) was established in 1978 out of a growing concern for a single, unified California transportation policy. The CTC is responsible for the programming and allocating of funds for the construction of highway, passenger rail, active transportation, aeronautics, and transit improvements throughout California. The CTC also advises and assists the Secretary of the

California State Transportation Agency (CalSTA) and the Legislature in formulating and evaluating state policies and plans for California's transportation programs. The CTC is also an active participant in the initiation and development of State and Federal legislation that seeks to secure financial stability for the State's transportation needs.

5.17.2.2.3 California Streets and Highway Code

The State of California Streets and Highway Code (SHC) requires the EPL Project proponents to obtain permits from Caltrans for any roadway encroachment during truck transportation and delivery. The SHC includes regulations for the care and protection of highways (both State and county) and requires permits for any load that exceeds Caltrans weight, length, or width standards for public roadways. (*See* SHC § 660 et seq.)

Sections 700 through 711 provide provisions that are specific to utility providers. The SHC also outlines directions for cooperation with local agencies, guidelines for permits, as well as general provisions relating to state highways and Caltrans' jurisdiction (State of California 2017).

5.17.2.3 Local

The CPUC has sole and exclusive state jurisdiction over the siting and design of the EPL Project. Pursuant to GO 131-D, Section XIV.B, "Local jurisdictions acting pursuant to local authority is preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters." Consequently, public utilities are directed to consider local regulations and consult with local agencies, but the county and cities' regulations are not applicable as the county and cities do not have jurisdiction over the EPL Project. Accordingly, the following discussion of local land use regulations is provided for informational purposes only.

5.17.2.3.1 San Bernardino County Countywide Plan, Transportation and Mobility Element

The San Bernardino County Countywide Plan Transportation and Mobility Element does not have any goals or policies relevant to the EPL Project.

5.17.2.3.2 Southern California Association of Governments

The Southern California Association of Governments' (SCAG) 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) is a long-range Plan for the six-county region that includes Los Angeles, Orange, San Bernardino, Riverside, Ventura, and Imperial counties. The RTP/SCS is a visioning plan that balances future mobility and housing needs with economic, environmental and public health goals. The RTP/SCS embodies a collective vision for the region's future and is developed with input from local governments, County Transportation Commissions, tribal governments, non-profit organizations, businesses and local stakeholders within the region. Ultimately, the vision of the RTP/SCS is to improve the quality of life for the region's residents by making the best transportation and land use choices for the future and supporting those choices with wise investments. Among the goals of the Plan are to reduce greenhouse gas emissions 8 percent per capita by 2020, with an 18 percent reduction by 2035 and a 21 percent reduction by 2040. The Plan also aims to reduce daily Vehicle Miles Traveled (VMT) per capita in San Bernardino County by nearly 10 percent (to 19.7 miles from 21.8 miles) and Vehicle Hours Traveled (VHT) per capita by 18 percent (for automobiles and light/medium duty trucks).

5.17.2.3.3 City of Hesperia General Plan 2010, Circulation Element

This Circulation Element details and outlines the City's plans to provide a transportation network system that allows the movement of people, goods, and services easily and safely throughout the city. The Element identifies the broader issues on which the City bases its circulation and transportation policies and outlines the City's goals and implementation policies to provide a safe and efficient transportation system strategy. This strategy also includes non-motorized modes of transportation such as bicycle and equestrian paths and pedestrian ways as well as bus routes. The Element contains the following:

> Goal: CI-2 Develop and implement a City-wide Congestion Management Plan.
>
> Implementation Policy CI-2.1. Strive to achieve and maintain a LOS D or better on all roadways and intersections: LOS E during peak hours shall be considered acceptable through freeway interchanges and major corridors (Bear Valley Road, Main Street/Phelan Road, Highway 395).
>
> Implementation Policy CI-2.2. Work with regional agencies which have authority over roadways within the City to ensure a minimum Level of Service D for roadways and a minimum Level of Service E for intersections.

5.17.2.3.4 City of Boulder City (NV) Master Plan

Chapter 9: Transportation and Mobility of the Master Plan contains policies that represent the community's vision for a transportation system and provide direction for property owners, elected and appointed community leaders, and city staff and administrators in making well-coordinated land use and transportation decisions. No policies are relevant to the EPL Project.

5.17.3 Impact Questions

5.17.3.1 Impact Questions

The significance criteria for assessing the impacts to transportation and traffic are derived from the CEQA Environmental Checklist. According to the CEQA Checklist, a project causes a potentially significant impact if it would:

- Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities
- Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)
- Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)
- Result in inadequate emergency access

5.17.3.2 Additional CEQA Impact Questions

The CPUC has identified additional CEQA significance criteria. According to these additional CEQA significance criteria, a project causes a potentially significant impact if it would:

- Would the project create potentially hazardous conditions for people walking, bicycling, or driving or for public transit operations?
- Would the project interfere with walking or bicycling accessibility?
- Would the project substantially delay public transit?

5.17.4 Impact Analysis

5.17.4.1 Impact Analysis

5.17.4.1.1 Would the project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?

Less than Significant Impact. Construction activities would include the movement of light, medium, and heavy-duty vehicles (including oversize vehicles such as cranes) along I-15 and I-40, various federal and state routes, and county and city-maintained roads. Construction activities would require the temporary closure of traffic lanes or roads during installation of inter-set structures and other construction activities located adjacent to roadways, and temporary and short-term road closures would also be required during the removal and installation of overhead wire.

Project-related vehicles and equipment would generally travel from staging areas or contractor yards to work sites in the morning, returning to their points of departure in the evening. SCE anticipates that construction of the EPL Project would take approximately 23 months, and that approximately 72 workers could be working along the EPL Project alignment on any given day. It is estimated that work described in Chapter 3—Project Description would generate fewer than 172 daily vehicle trips roundtrips across the breadth of the EPL Project. The 172 daily vehicle roundtrips are inclusive of each worker making two daily personal vehicle trips (one trip in the morning to a staging area, and one trip in the reverse in the evening, for a total of 72 roundtrips per day); due to the working hours of utility and construction crews, the majority of these personal vehicle trips would occur outside the morning and evening peak hours. Construction vehicles may be parked along the alignment overnight rather than being driven back to a staging area. Further, the remote locations of most work areas along the EPL Project alignment would require that the minimum number of vehicles needed to transport crews be driven to the work areas each morning (e.g., multiple workers traveling in a single vehicle), and SCE may also fly construction crews to very remote work areas rather than having the crews drive each day. These measures would serve to reduce the number of vehicle movements per day.

The estimated deployment and number of crew members would vary depending on factors such as material availability, resource availability, and construction scheduling. As a result, the actual number of daily vehicle trips may be lower depending on the final construction schedule; the number of daily vehicle trips used here conservatively estimates potential impacts. Further, vehicle movements would be geographically- and temporally-dispersed across the EPL Project alignment.

A temporary increase in vehicle movements during Project construction activities would occur along I-15, I-40, federal and state routes, and county and city roads; the very large majority of these movements would be along interstates, rural highways and roadways, and through rural intersections.

In the City of Hesperia, the limited scope of work would generally require vehicle movements along Ranchero Road east of I-15. All intersections along Ranchero Road, and the I-15/Ranchero Road intersection, operate at an LOS of B, C, or D. The limited scope of work that would be supported from Ranchero Road and the small number of vehicles needed to accomplish that work would not result in any intersection dropping below LOS D, and thus the EPL Project would not conflict with the City of Hesperia General Plan 2010, Circulation Element, Implementation Policy CI-2.1. San Bernardino County does not establish an acceptable LOS.

Project construction activities would require temporary lane or road closures and may require that the direction of travel on some roads be limited or modified. Temporary closure of travel lanes or roads or the modification of travel directions, could impact the performance of the circulation system in populated

areas, including but not limited to city and county streets and highways. In these areas, SCE would obtain encroachment permits from the local jurisdictions and Caltrans, as appropriate, for lane or roadway closures. In addition, SCE would implement traffic control measures as presented in Section 3.5.10 to ensure the safe and efficient transit of vehicles, bicyclists, and pedestrians.

Based on the number of daily vehicle trips generated during construction, the EPL Project would have a less than significant impact with respect to conflicting with applicable plans, ordinances or policies that establish measures of effectiveness.

5.17.4.1.1.1 Operations

No Impact. As presented in Chapter 3, SCE is currently performing O&M activities, including inspections, along the transmission lines included under the EPL Project. No material changes in O&M activities are anticipated with implementation of the EPL Project, and therefore no new impacts would be realized under this criterion during operations and maintenance.

5.17.4.1.2 Would the Project conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?

5.17.4.1.2.1 Construction

No Impact. The Southern California Association of Governments 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) has established a goal to reduce daily Vehicle Miles Traveled (VMT) per capita in San Bernardino County by nearly 10 percent (to 19.7 miles from 21.8 miles) and Vehicle Hours Traveled (VHT) per capita by 18 percent (for automobiles and light/medium duty trucks).

As presented in Chapter 3 – Project Description, SCE anticipates that construction of the EPL Project would take approximately 23 months, and that up to 72 workers could be working along the EPL Project alignment on any given day. SCE anticipates that its own crews or specialty electrical contractors would be used for this work. The short duration of the construction period would not trigger the creation of any new employment positions—SCE crews and contractor crews are currently employed and utilized on projects across the broader region. Because of this, no population growth would be induced by the reconductoring of the transmission lines and installation of inter-set structures included in the EPL Project, and therefore the EPL Project would not conflict or be inconsistent with the attainment of the VMT goals. Therefore, no impact would occur under this criterion.

5.17.4.1.2.2 Operations

No Impact. As presented in Section 5.14, the EPL Project would not provide new or upgraded electrical service to the area around the EPL Project alignment to the extent that population growth would be induced. Further, the EPL Project does not include any new infrastructure such as publicly accessible roads that could induce population growth during operations.

As presented in Chapter 3, SCE is currently performing O&M activities, including inspections, along the transmission lines included under the EPL Project. No material changes in O&M activities are anticipated with implementation of the EPL Project.

Because the operation of the EPL Project infrastructure would not induce any population growth, and because no material changes in O&M activities would occur, no increase in VMT, vehicle hours traveled, or automobile trips would result, and therefore no impacts would be realized under this criterion during operations and maintenance.

5.17.4.1.3 Would the Project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

5.17.4.1.3.1 Construction

No Impact. No incompatible uses of public roads are proposed. No construction or geometric alteration of any public roads are proposed. Therefore, no impacts would occur under this criterion.

5.17.4.1.3.2 Operations

No Impact. As presented in Chapter 3, SCE is currently performing O&M activities, including inspections, along the transmission lines included under the EPL Project. No material changes in O&M activities are anticipated with implementation of the EPL Project, and therefore no impacts would be realized under this criterion during operations and maintenance.

5.17.4.1.4 Would the Project result in inadequate emergency access?

5.17.4.1.4.1 Construction

Less than Significant Impact. Construction activities may require temporary closure of travel lanes on public and private roads in habited areas and would involve the movement of oversized vehicles that could affect emergency vehicle access to and along the EPL Project alignment.

During planning for and construction of the EPL Project, road or lane closures, limitations on the direction of travel, and vehicle movements along and use of public roads and access roads would be communicated to and coordinated with the appropriate agencies and landowners, as necessary. Equipment placed on access or spur roads and in construction work areas would be situated or attended to facilitate emergency vehicle access. SCE would also obtain the appropriate permits from the local jurisdictions, land management agencies, and Caltrans, as applicable, for construction activities that would encroach upon any public ROW or easement. In addition, SCE would implement traffic control measures as presented in Section 3.13 to ensure adequate emergency access to, along, and across the EPL Project alignment. Therefore, impacts would be less than significant.

5.17.4.1.4.2 Operations

No Impact. As presented in Chapter 3, SCE is currently performing O&M activities, including inspections, along the transmission lines that are included under the EPL Project. No material changes in O&M activities are anticipated with implementation of the EPL Project, and therefore no impacts would be realized under this criterion during operations and maintenance.

5.17.4.1.5 Would the project create potentially hazardous conditions for people walking, bicycling, or driving or for public transit operations?

5.17.4.1.5.1 Construction

Less than Significant Impact. No incompatible uses of public roads are proposed. No construction or geometric alteration of any public roads are proposed. Construction traffic would transit roadways along which pedestrians, cyclists, other motorists, and transit operations may be present. Construction vehicles would be operated according to applicable laws and regulations, and SCE would implement traffic control measures and pedestrian detours/alternate routing as presented in Section 3.13 during construction of the EPL Project. Therefore, construction of the EPL Project would not create a potentially significant hazardous condition for other users of public roads or associated infrastructure.

5.17.4.1.5.2 Operations

Less than Significant Impact. No incompatible uses of public roads are proposed. No construction or geometric alteration of any public roads are proposed. O&M-related vehicles would transit roadways along which pedestrians, cyclists, other motorists, and transit operations may be present. Vehicles would be operated according to applicable laws and regulations, and SCE would implement typical traffic control measures and pedestrian detours/alternate routing similar to those presented in Section 3.13 during operation of the EPL Project. Further, as presented in Chapter 3, SCE is currently performing O&M activities, including inspections, along the transmission lines that are included under the EPL Project. No material changes in O&M activities are anticipated with implementation of the EPL Project. Therefore, O&M of the EPL Project would not create a potentially significant hazardous condition for other users of public roads or associated infrastructure.

5.17.4.1.6 Would the project interfere with walking or bicycling accessibility?

5.17.4.1.6.1 Construction

Less than Significant Impact. Walking and bicycling accessibility is generally low across the EPL Project alignment due to a dearth of dedicated pedestrian and bicycling infrastructure and a paucity of public roads. The EPL Project alignment crosses identified Class II bikeways; the roads along which these bikeways are sited would not be closed or otherwise impacted by construction of the EPL Project. The EPL Project alignment crosses roadways that could be used by bicyclists and pedestrians; at certain times, these roadways (or portions thereof) would be closed during construction. SCE would obtain the appropriate permits from the local jurisdictions, land management agencies, and Caltrans, as applicable, for construction activities that would result in the closure of a roadway or portion thereof and would implement traffic control measures as presented in Section 3.13.

Construction traffic would transit roadways along which pedestrians and cyclists may be present. Construction vehicles would be operated according to applicable laws and regulations, and thus would not interfere with walking or bicycling accessibility.

Because closures would be intermittent and short-term and construction vehicles would be operated according to applicable laws and regulations, interference with walking or bicycling accessibility would be less than significant.

5.17.4.1.6.2 Operations

No Impact. As presented in Chapter 3, SCE is currently performing O&M activities, including inspections, along the transmission lines that are included under the EPL Project. No material changes in O&M activities are anticipated with implementation of the EPL Project, and these activities are not known to have interfered with walking or bicycling accessibility in the past. Therefore, no impacts would be realized under this criterion during operations and maintenance.

5.17.4.1.7 Would the project substantially delay public transit?

5.17.4.1.7.1 Construction

No Impact. No bus routes would be delayed during construction. None of the roadways over which these routes are operated would be temporarily closed during the EPL Project, and the volume of project-related traffic that would travel along the roadways over which these routes are operated would not reduce the LOS such that public transit services would be delayed.

5.17.4.1.7.2 Operations

No Impact. VVTA bus routes could be delayed during routine or emergency O&M activities, including during conductor removal or installation activities, as the roadways over which these routes are operated would be temporarily closed during these activities. Such closures would be short-term (less than an hour), and while such activities are generally performed at times of day outside the operating hours of the routes, in an emergency such activities could occur at any time, including during the times when the routes are operated. However, such delays would not be substantial, and thus no impacts would be realized under this criterion during operations and maintenance.

5.17.4.2 VMT

No portion of the EPL Project is located within 0.5 miles of a major transit stop or a high-quality transit corridor.

It is estimated that work described in Chapter 3—Project Description would generate approximately 40 daily vehicle trips roundtrips across the breadth of the EPL Project. The 40 daily vehicle roundtrips are inclusive of each worker making two daily personal vehicle trips (one trip in the morning to a staging area, and one trip in the reverse in the evening, for a total of 20 roundtrips per day). The remaining 20 daily vehicle roundtrips would account for heavy-duty vehicle movements associated with construction.

The VMT generated by the EPL Project during construction is shown in Table 5.17-3.

Table 5.17-3. VMT, EPL Project Construction

	VMT, Daily[1]	VMT, Total
Worker Vehicles	1,022	631,200
Construction Vehicles	466	279,736

Notes:
1 Assumes 6-day construction week, and 24-month construction duration, totaling 600 work days.

No additional VMT will be generated by operation of the EPL Project; the VMT associated with operation of the replacement EPL Project infrastructure will be the same as the VMT associated with operation of the existing EPL Project infrastructure. VMT data are provided in Appendix K.

Comparison of the EPL Project-related VMT data presented in Table 5.17-3 with the existing VMT data for San Bernardino County presented in Table 5.17-3 indicates that the EPL Project, during construction, would generate VMT that equate to less than one-tenth of 1 percent of the VMT presently in San Bernardino County.

5.17.4.3 Traffic Impact Analysis

A traffic impact study has not been prepared for the EPL Project. The EPL Project would not result in any long-term or permanent increase in traffic, would not generally result in an increase in peak hour trips given the typical work hours of construction crews, is not a development project, and would not result in any land use changes.

5.17.4.4 Hazards

No permanent traffic hazards would result from construction and operation of the EPL Project.

Lane closures may occur along roadways listed in Table 5.17-1, with a distance to the closest project feature of ‘0’. SCE will institute traffic management measures during construction of the EPL Project.

5.17.4.5 Accessibility

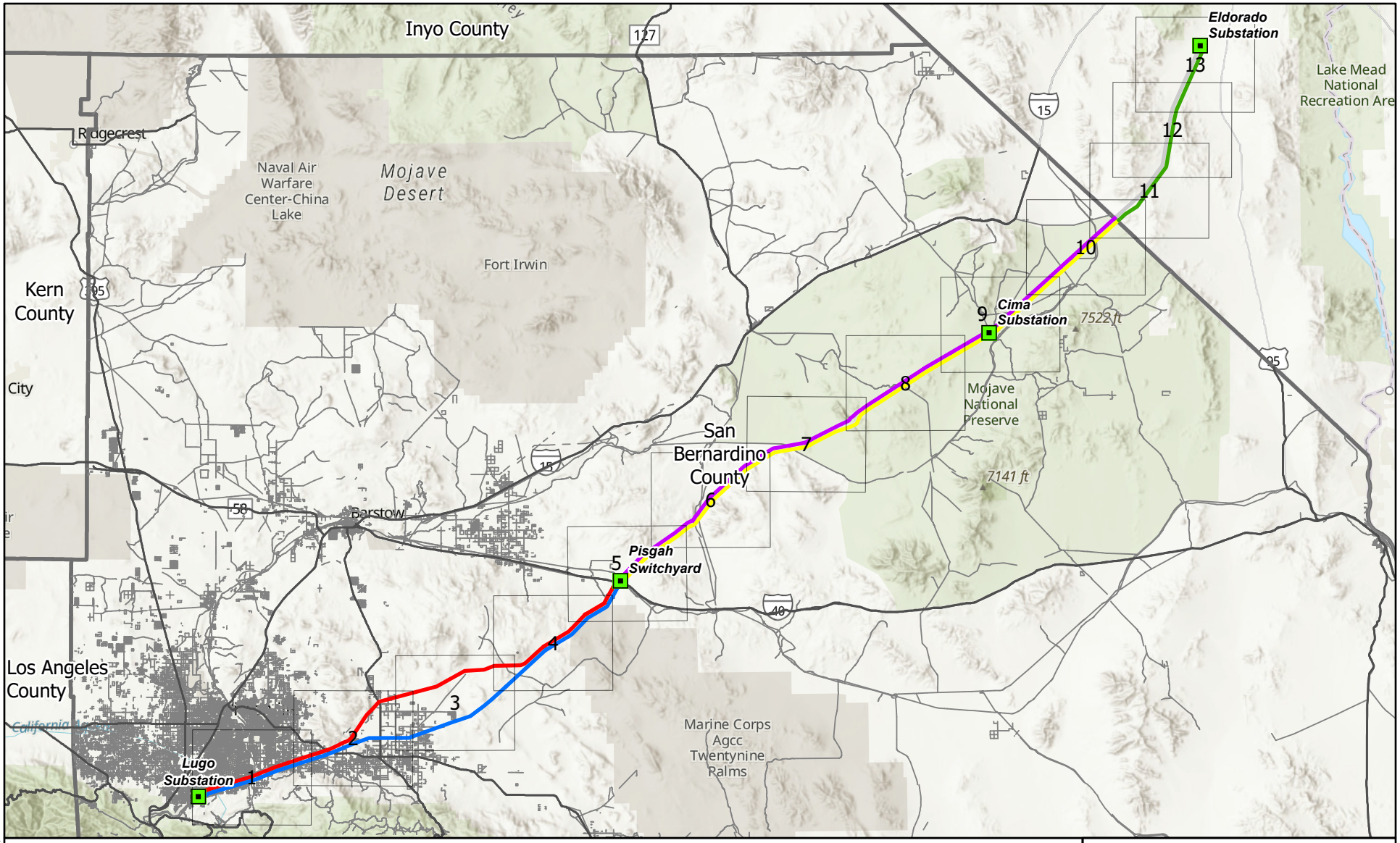
The EPL Project alignment crosses extant bike lanes and pedestrian facilities. No transit stops could be closed during construction.

5.17.4.6 Transit Delay

VVTA Route 23, Route 25, and Route 66 would not be delayed by construction of the EPL Project. These routes could be delayed during operation of the EPL Project; such closures would be short-term (less than an hour) and generally performed at times of day outside the operating hours of the routes.

5.17.5 CPUC Draft Environmental Measures

There are no CPUC Draft Environmental Measures identified for the Transportation resource area.



Legend

- Substations
- Segment 1
- Segment 2
- Segment 3
- Segment 4
- Segment 5
- Segment 6
- County Boundary
- State Highway
- County Road

NOTES:
Sources: https://arcadis.maps.arcgis.com/home/item.html?id=133d8b914a104e5ba57eccacddb0fe72;
https://caltrans-gis.dot.ca.gov/arcgis/rest/services/CHhighway/SHN_Lines/FeatureServer/0

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0 15 30
Miles

ELDORADO-PISGAH-LUGO 220 kV PROJECT

EXISTING ROADWAYS AND CIRCULATION

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.17-1

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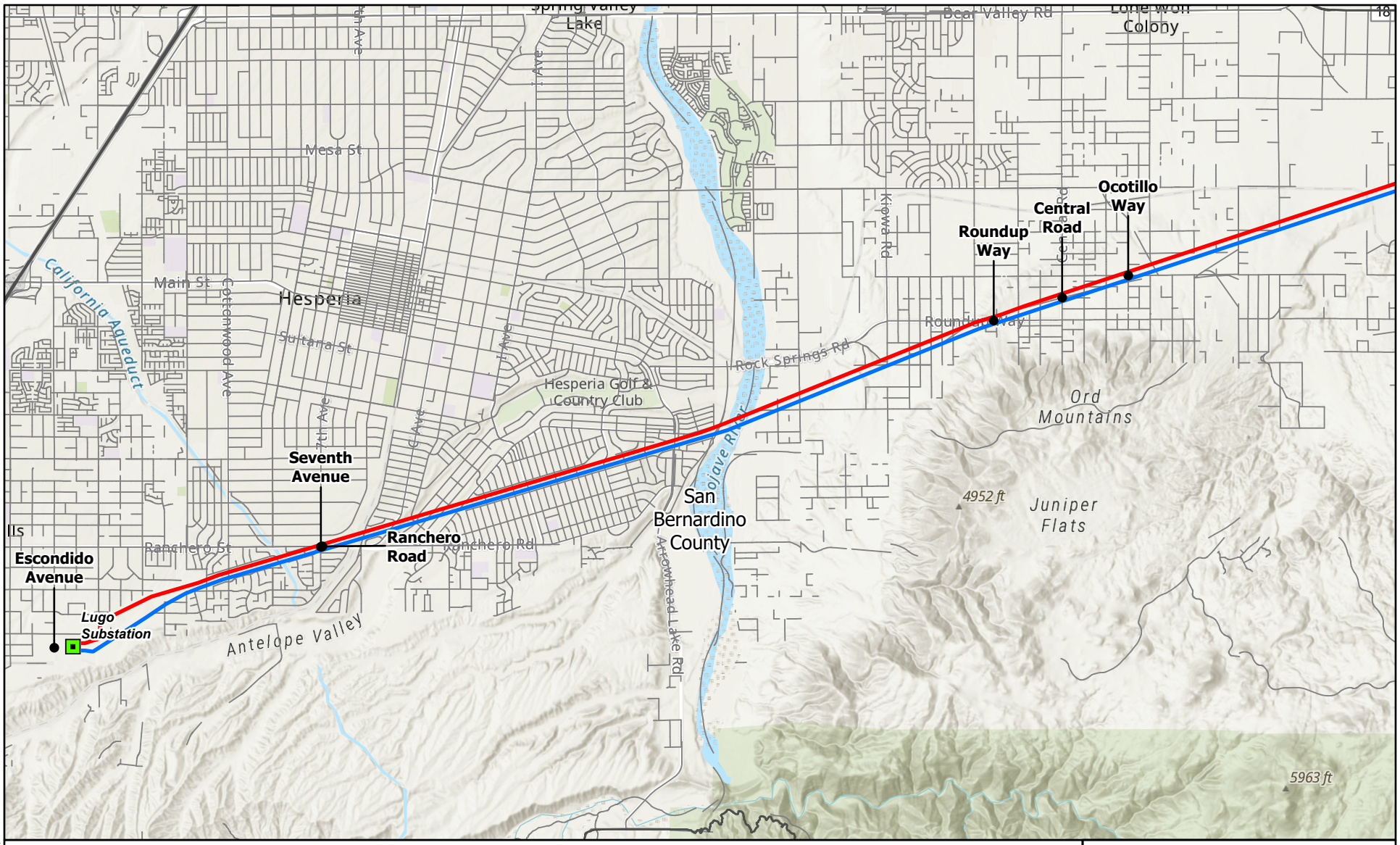

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- Substations
- Segment 1
- Segment 2
- County Boundary
- State Highway
- County Road

NOTES:
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ELDORADO-PISGAH-LUGO 220 kV PROJECT

EXISTING ROADWAYS AND CIRCULATION

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FIGURE 5.17-1

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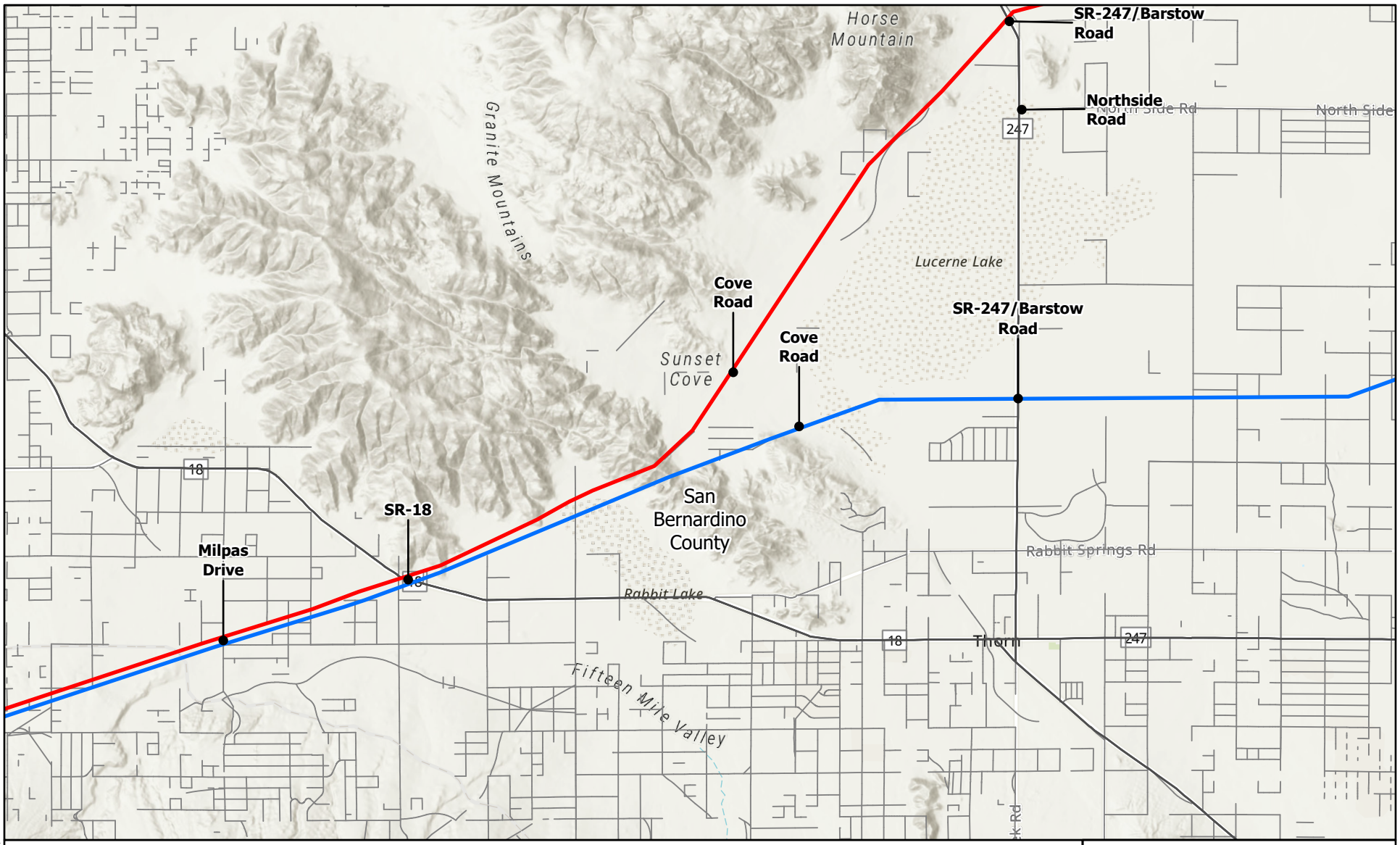

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- Substations
- Segment 1
- Segment 2
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- State Highway
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ELDORADO-PISGAH-LUGO 220 kV PROJECT

EXISTING ROADWAYS AND CIRCULATION

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
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FIGURE 5.17-1

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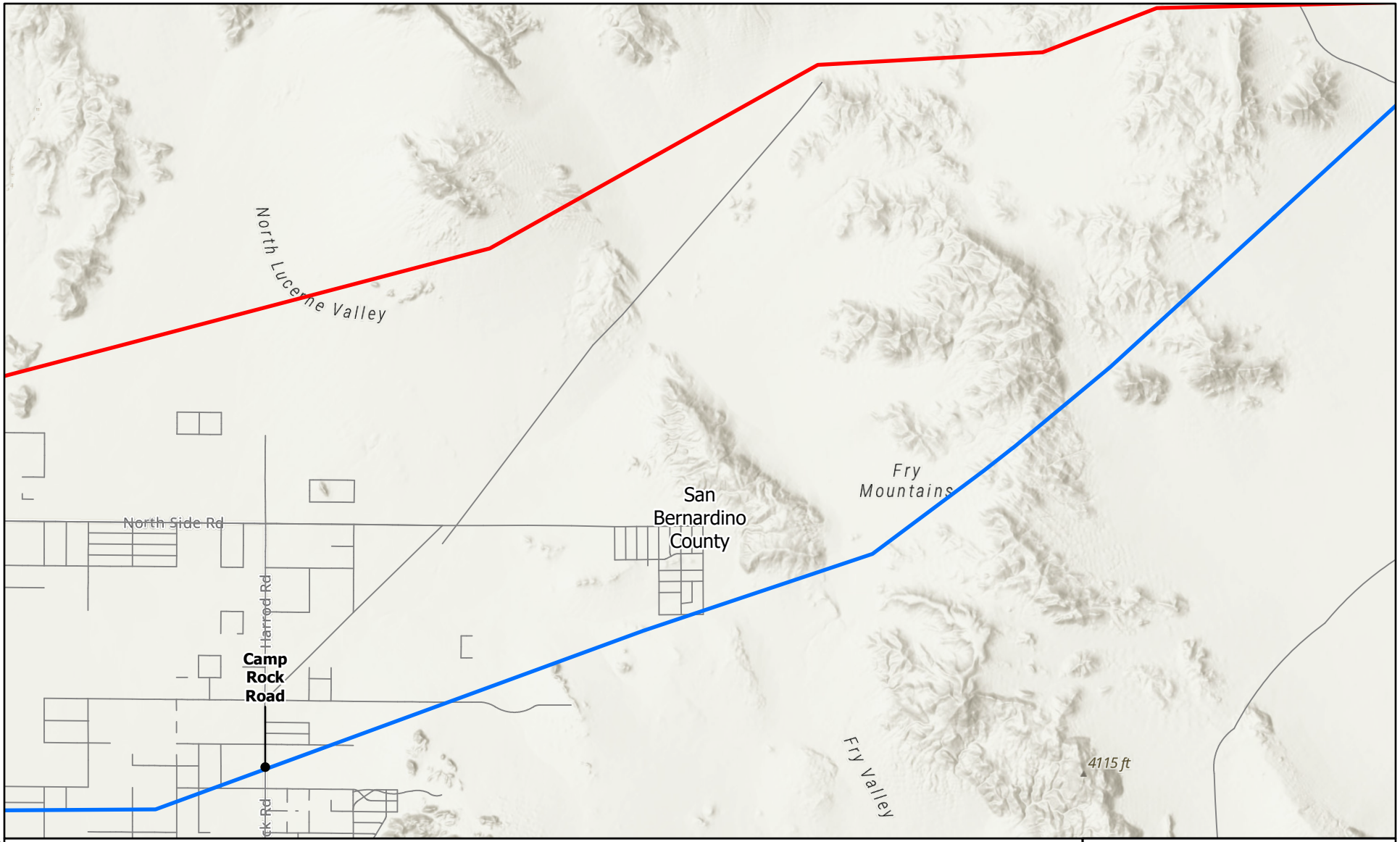

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ELDORADO-PISGAH-LUGO 220 kV PROJECT

EXISTING ROADWAYS AND CIRCULATION

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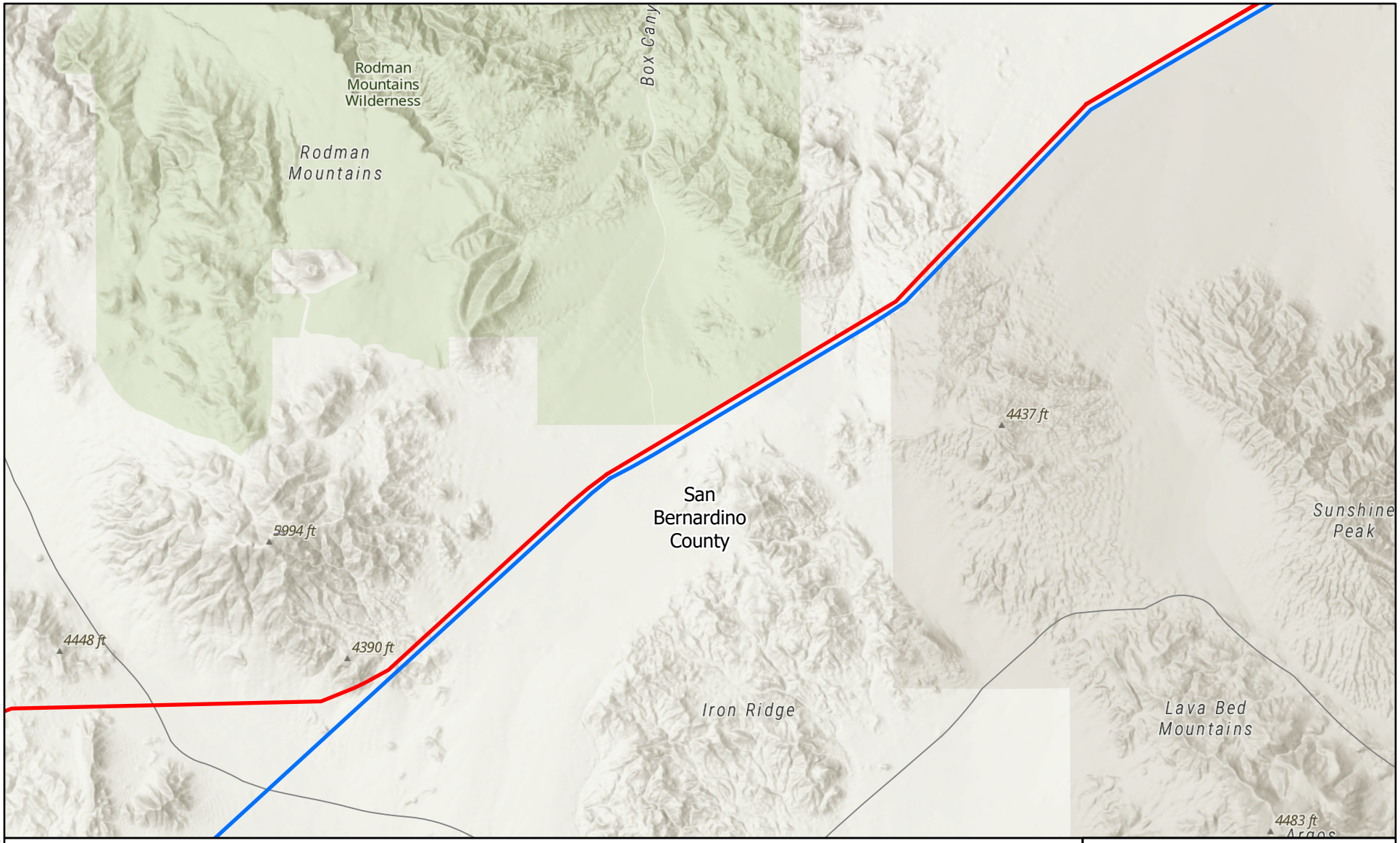
FIGURE 5.17-1



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ELDORADO-PISGAH-LUGO 220 kV PROJECT

EXISTING ROADWAYS AND CIRCULATION

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
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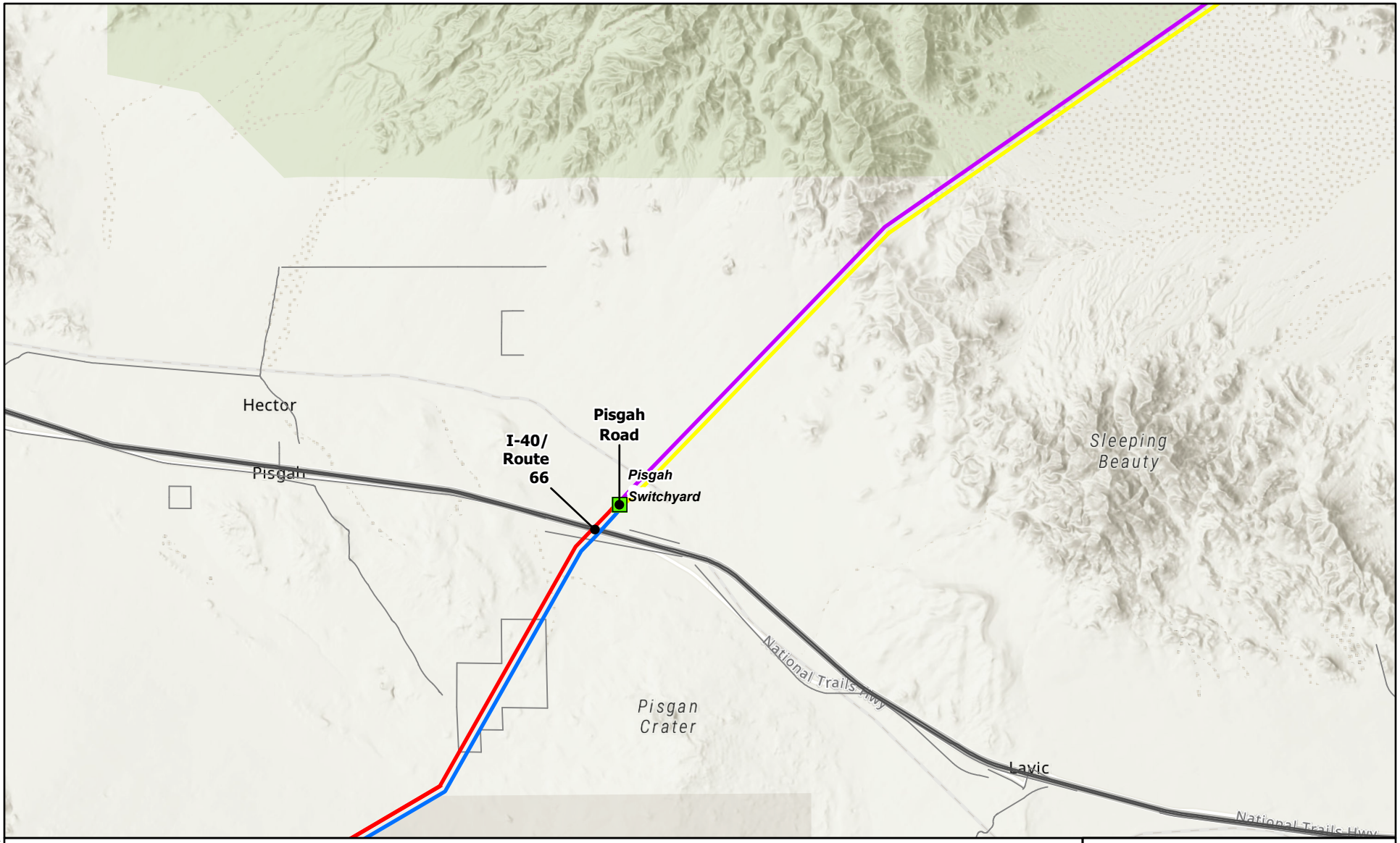
FIGURE 5.17-1



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ELDORADO-PISGAH-LUGO 220 kV PROJECT

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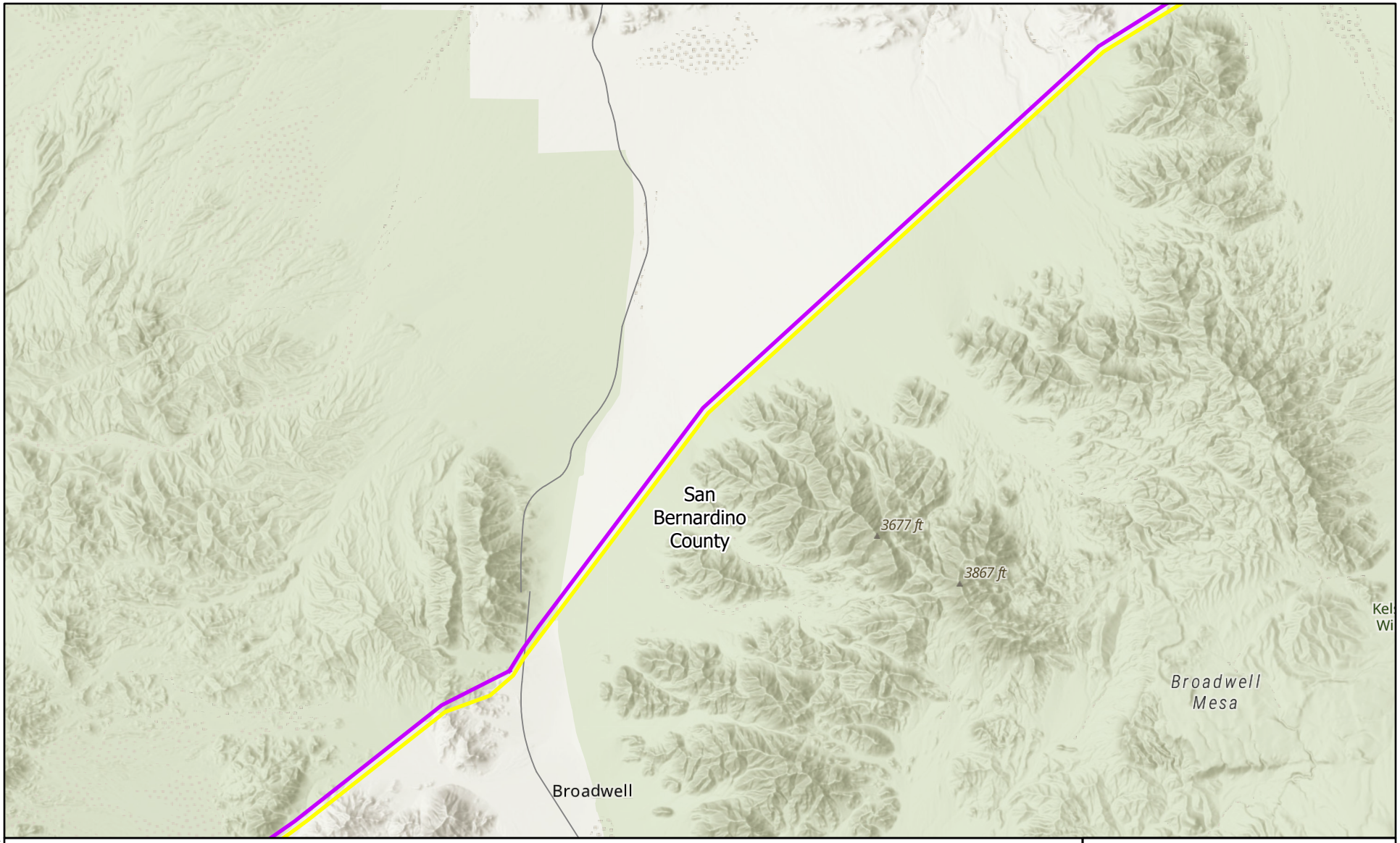

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ELDORADO-PISGAH-LUGO 220 kV PROJECT

EXISTING ROADWAYS AND CIRCULATION

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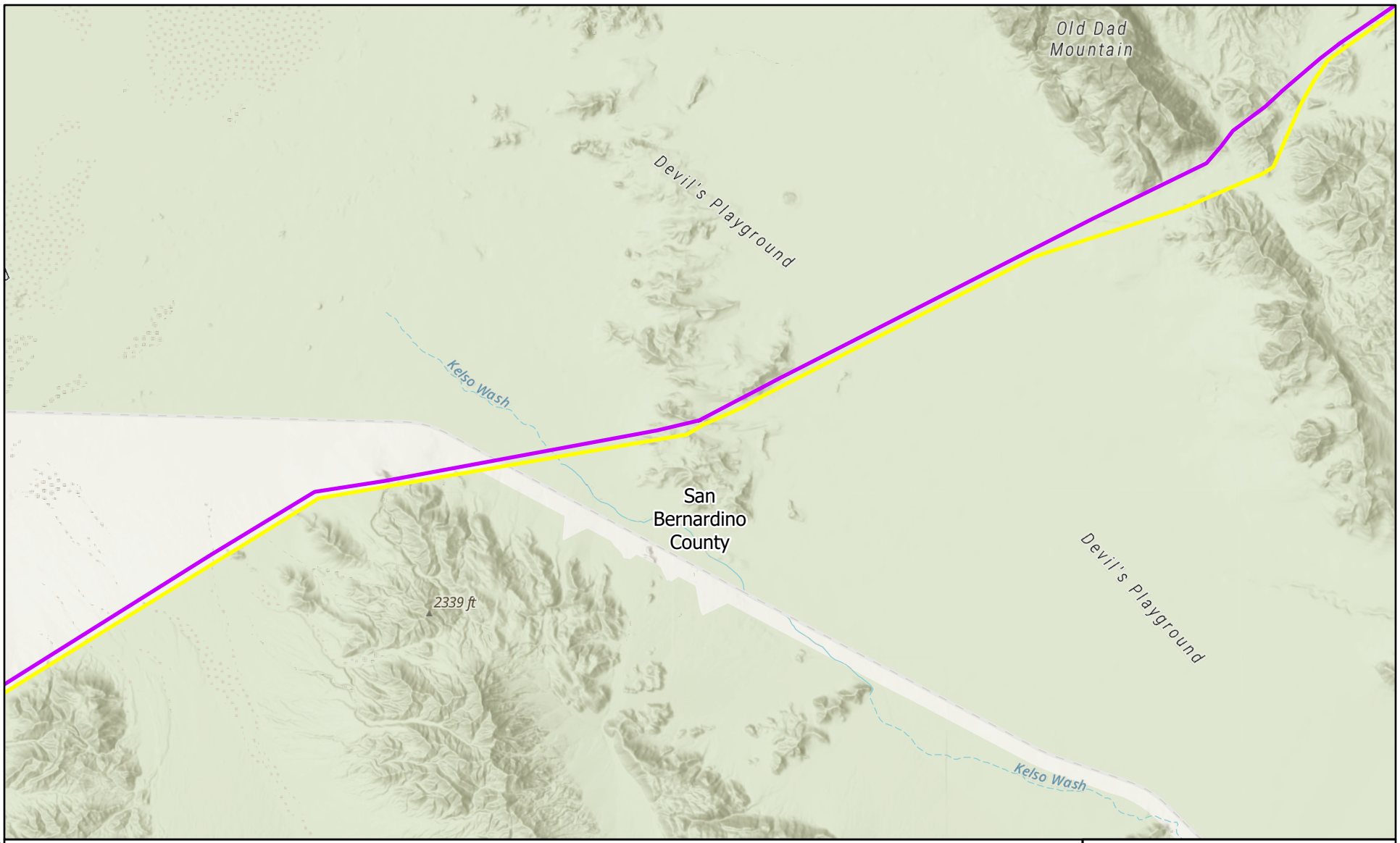

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EXISTING ROADWAYS AND CIRCULATION

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FIGURE 5.17-1

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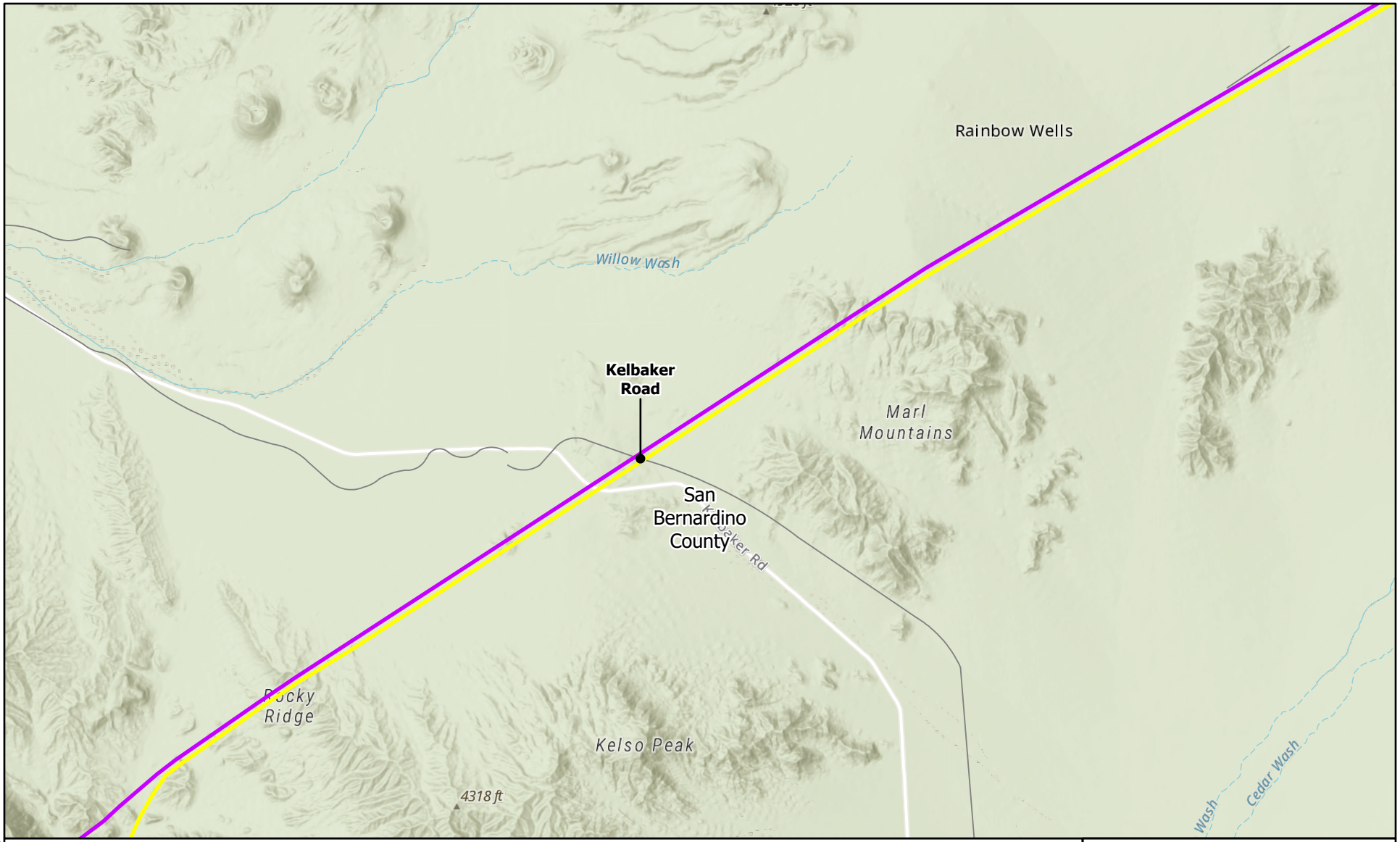

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- Substations
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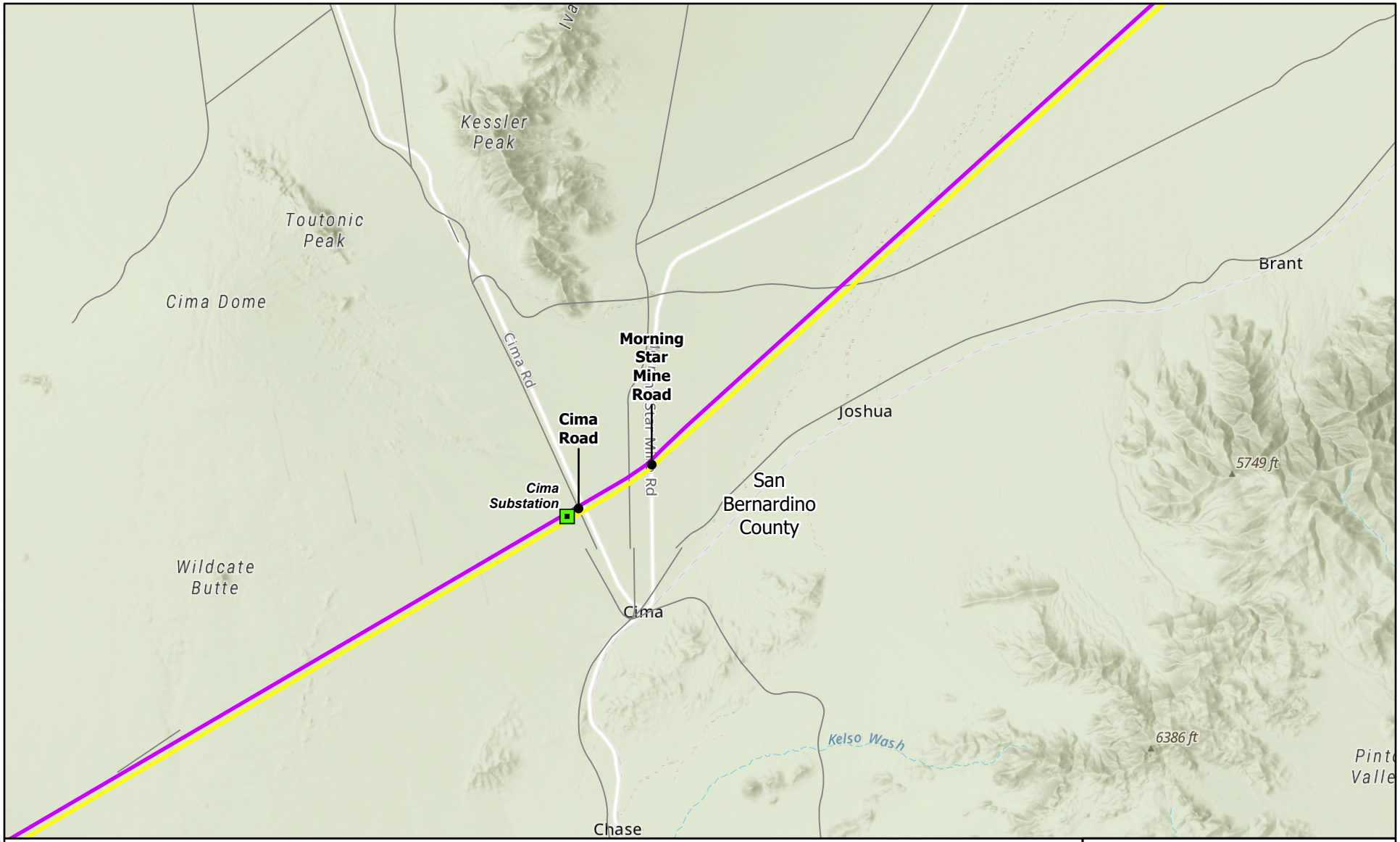
ELDORADO-PISGAH-LUGO 220 kV PROJECT

EXISTING ROADWAYS AND CIRCULATION

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.17-1



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ELDORADO-PISGAH-LUGO 220 kV PROJECT

EXISTING ROADWAYS AND CIRCULATION

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FIGURE 5.17-1

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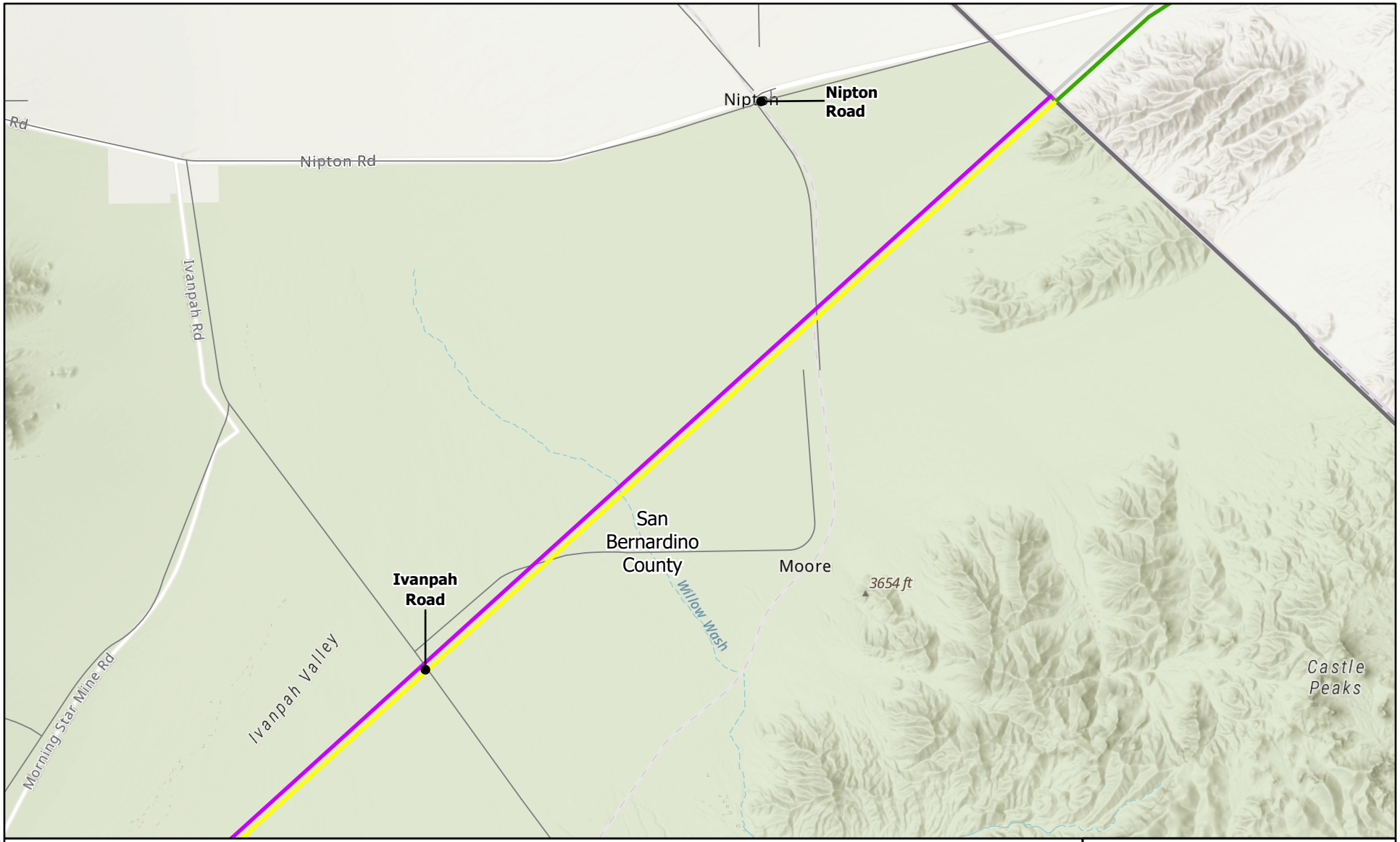

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ELDORADO-PISGAH-LUGO 220 kV PROJECT

EXISTING ROADWAYS AND CIRCULATION

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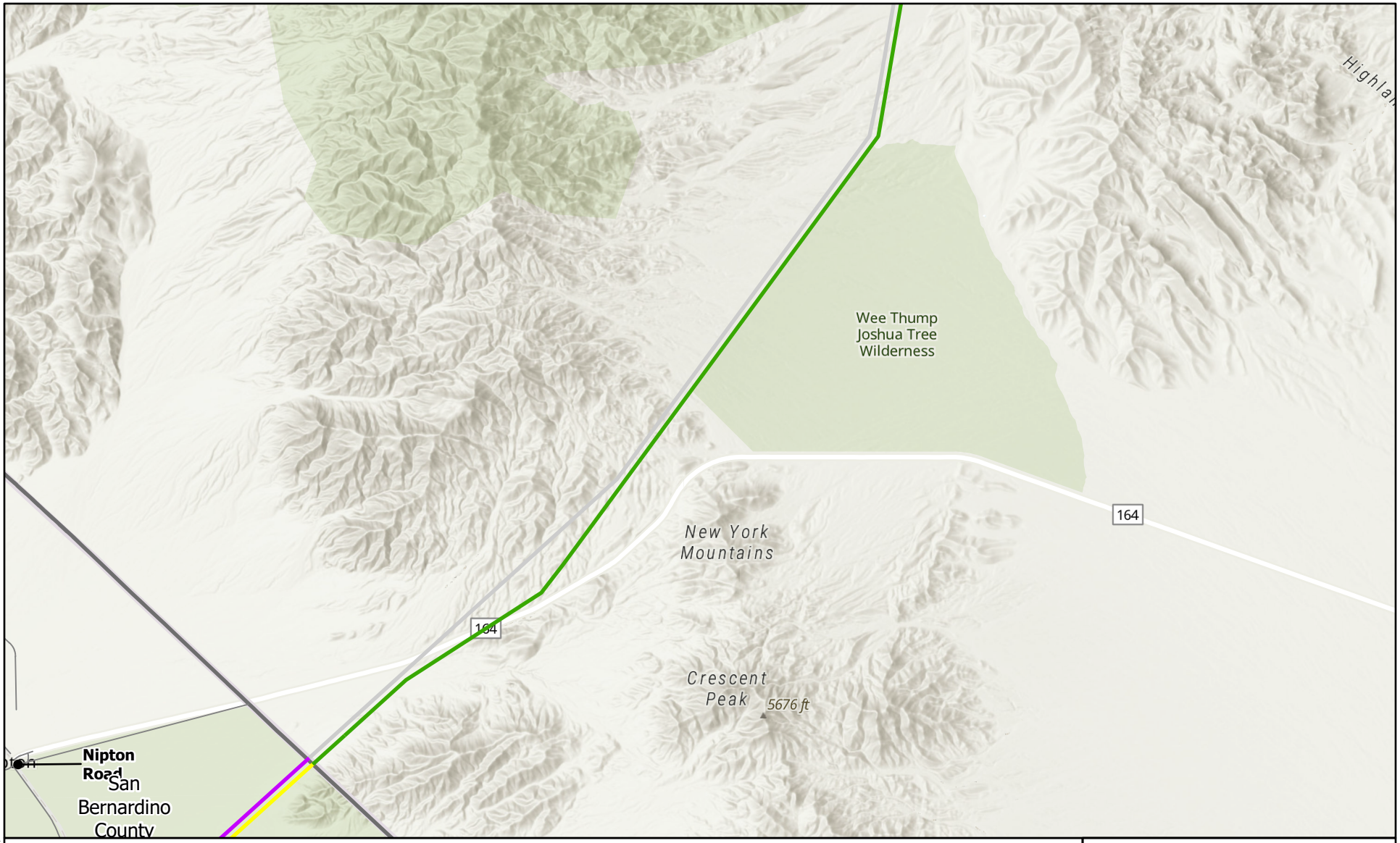

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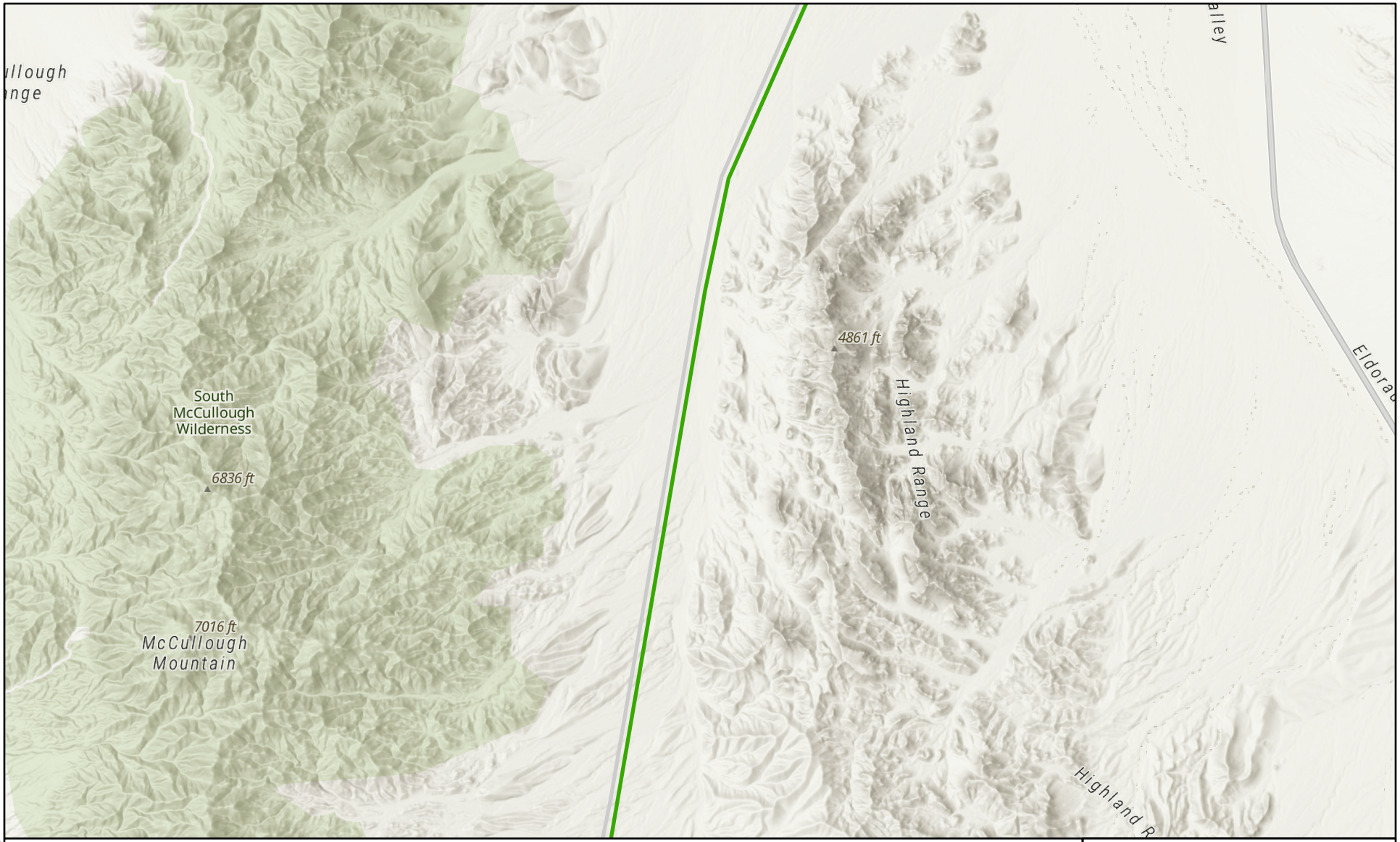
ELDORADO-PISGAH-LUGO 220 kV PROJECT

EXISTING ROADWAYS AND CIRCULATION

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company

ARCADIS

FIGURE 5.17-1



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- Substations
- Segment 5
- Segment 6
- County Boundary
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Miles

ELDORADO-PISGAH-LUGO 220 kV PROJECT

EXISTING ROADWAYS AND CIRCULATION

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.17-1

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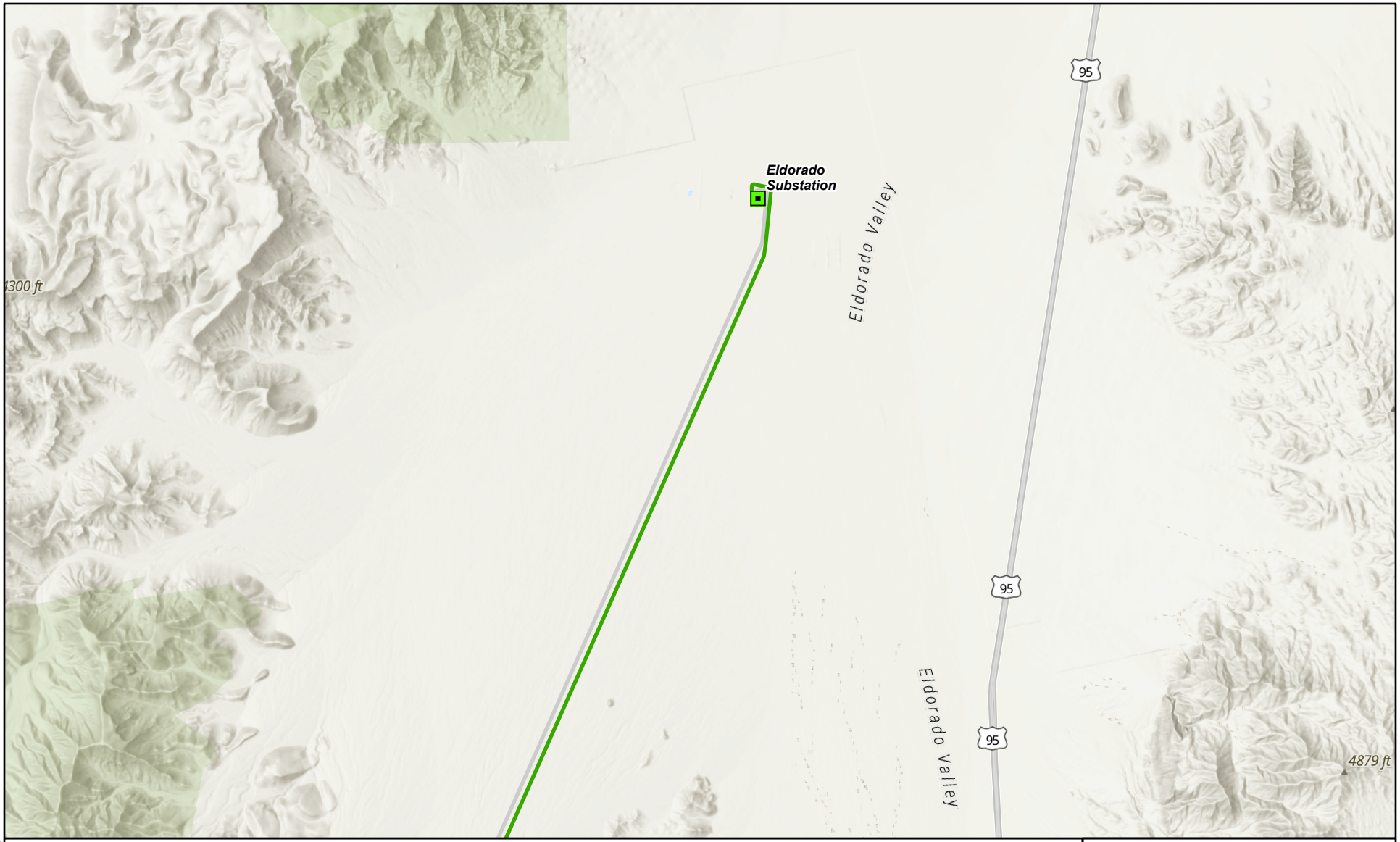

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ELDORADO-PISGAH-LUGO 220 kV PROJECT

EXISTING ROADWAYS AND CIRCULATION

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.17-1

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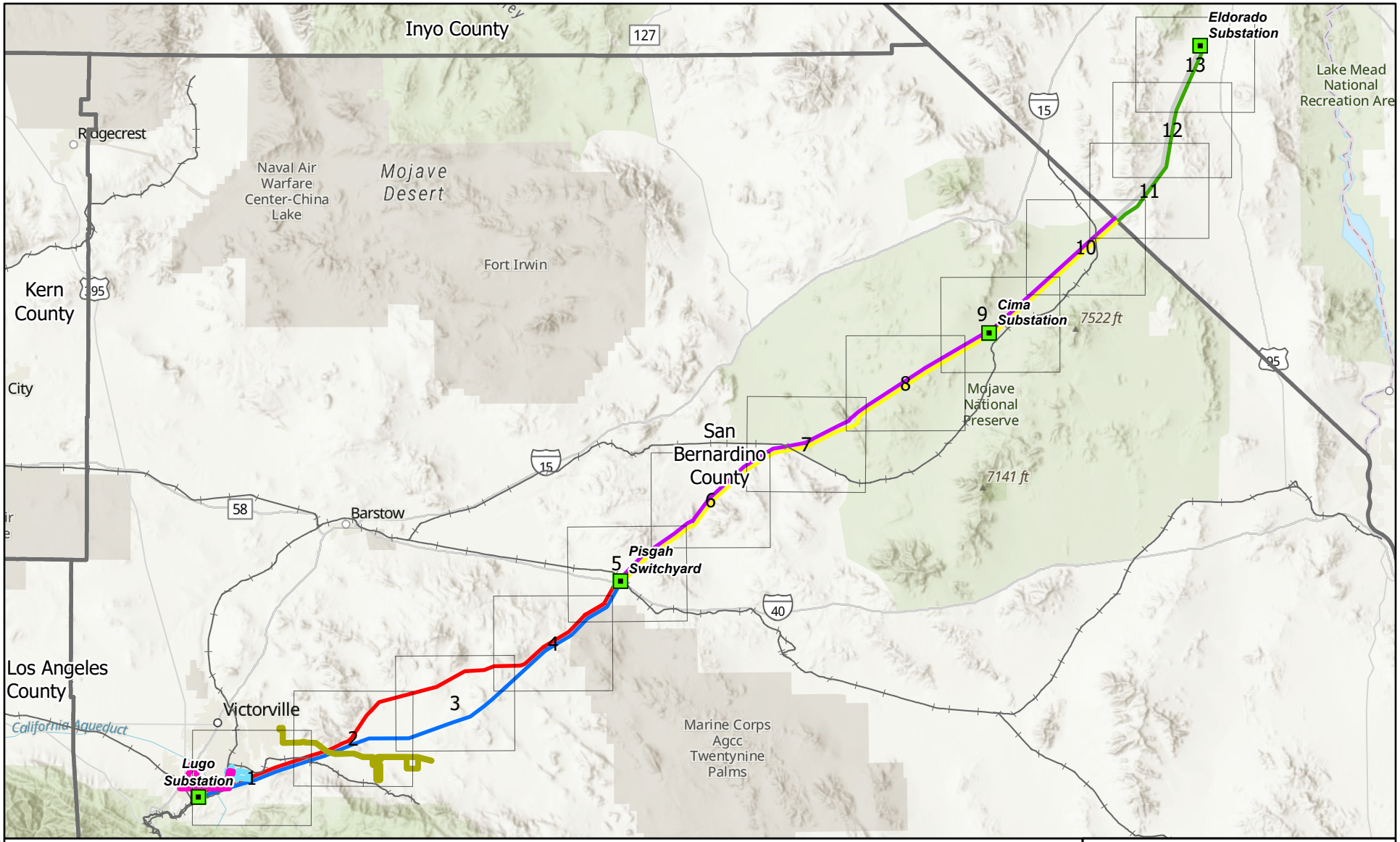

Legend

- Substations
- Segment 1
- Segment 2
- Segment 3
- Segment 4
- Segment 5
- Segment 6
- County Boundary
- Victor Valley Transit Bus Route 25
- Victor Valley Transit Bus Route 66
- Victor Valley Transit Bus Route 23
- California Rail Network

NOTES:
Sources: https://services2.arcgis.com/pXSDhBcg9ZHrVBu8/arcgis/rest/services/BusRoute_clip/FeatureServer; https://caltrans-gis.dot.ca.gov/arcgis/rest/services/CHrailroad/California_Rail_Network/FeatureServer

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Miles

ELDORADO-PISGAH-LUGO 220 kV PROJECT

TRANSIT AND RAIL SERVICES

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company ARCADIS

FIGURE 5.17-2

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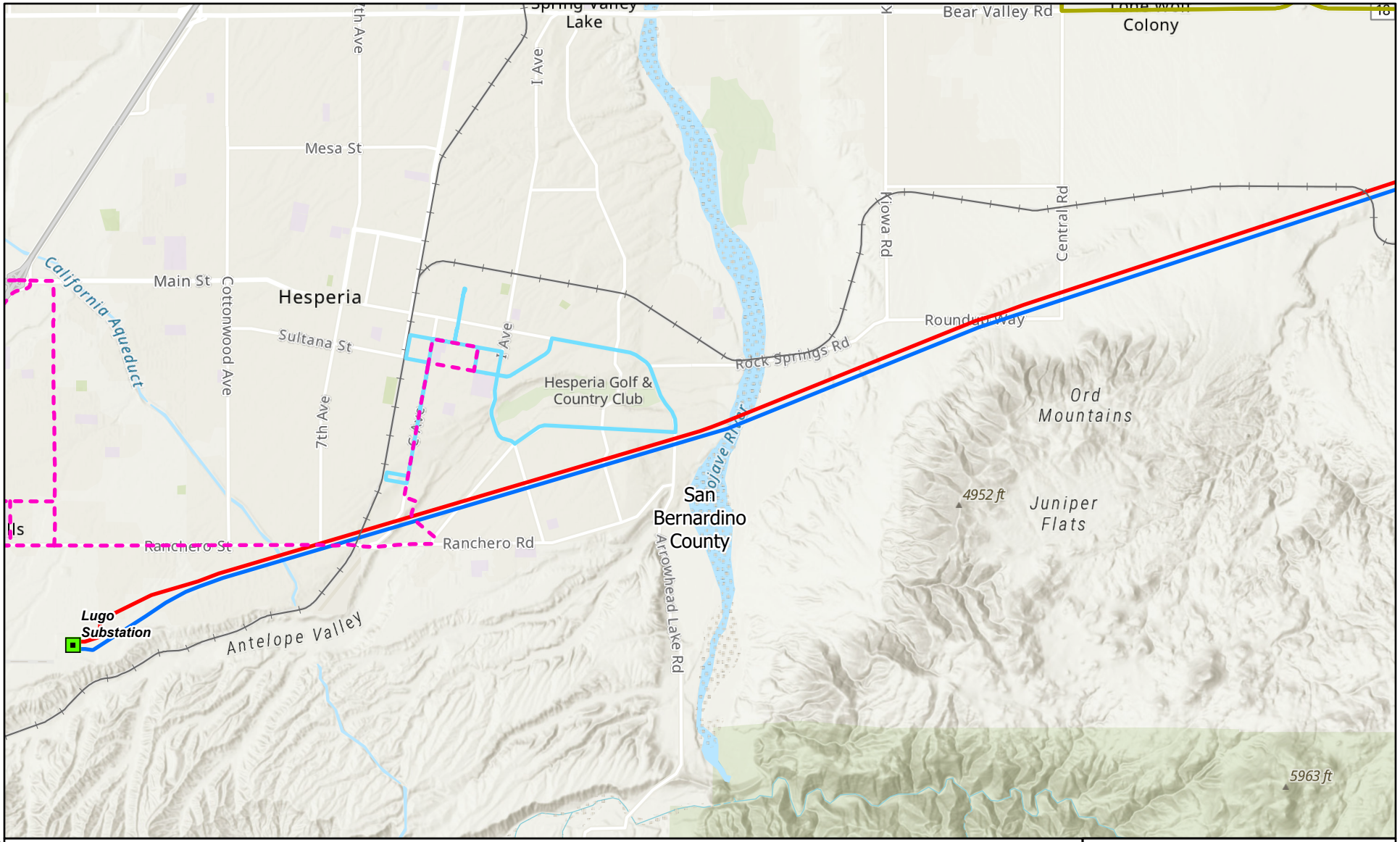

Legend

- Substations
- Segment 1
- Segment 2
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- Victor Valley Transit Bus Route 25
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ELDORADO-PISGAH-LUGO 220 kV PROJECT

TRANSIT AND RAIL SERVICES

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.17-2

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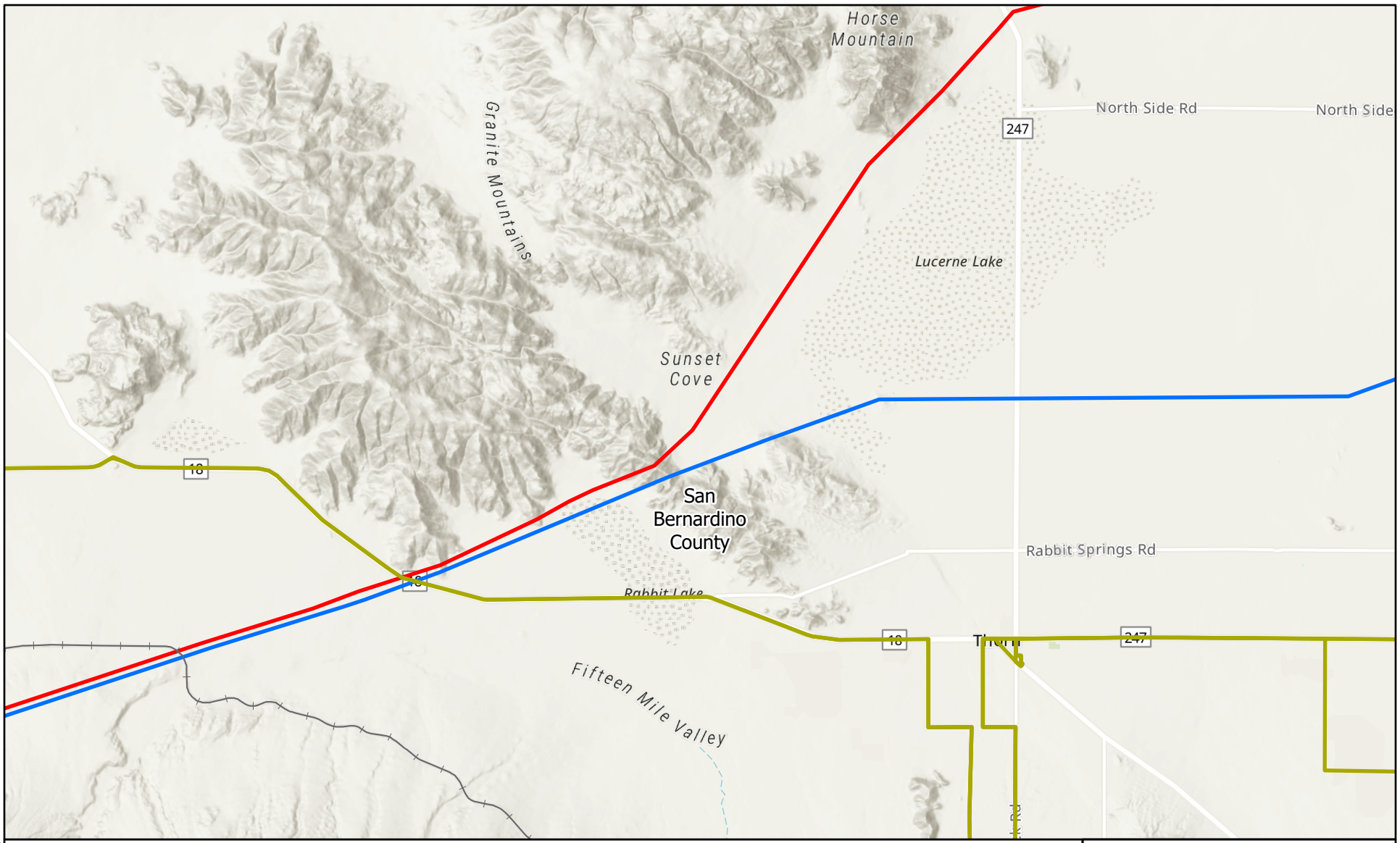

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- Substations
- Segment 1
- Segment 2
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- Victor Valley Transit Bus Route 25
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ELDORADO-PISGAH-LUGO 220 kV PROJECT

TRANSIT AND RAIL SERVICES

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.17-2

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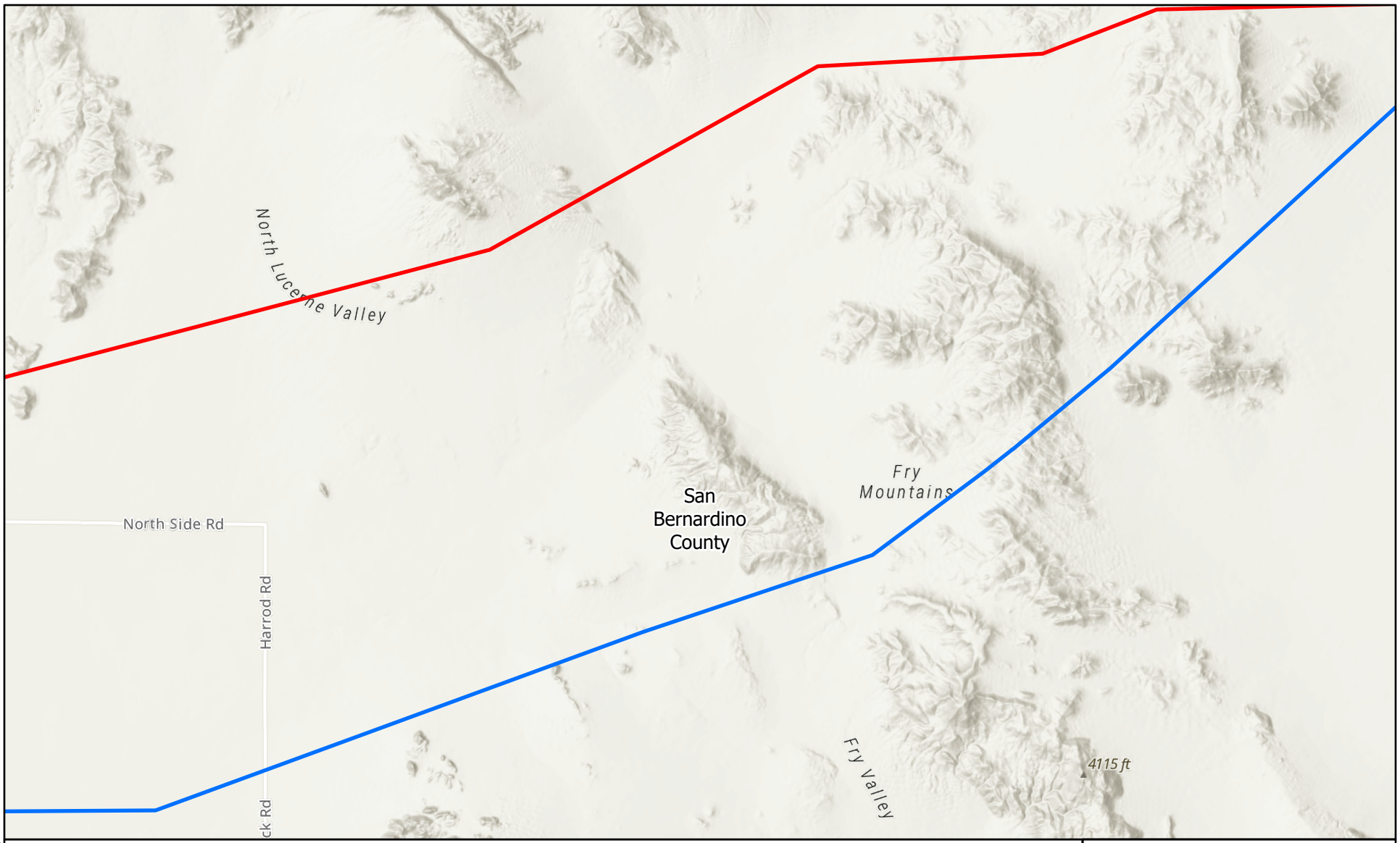

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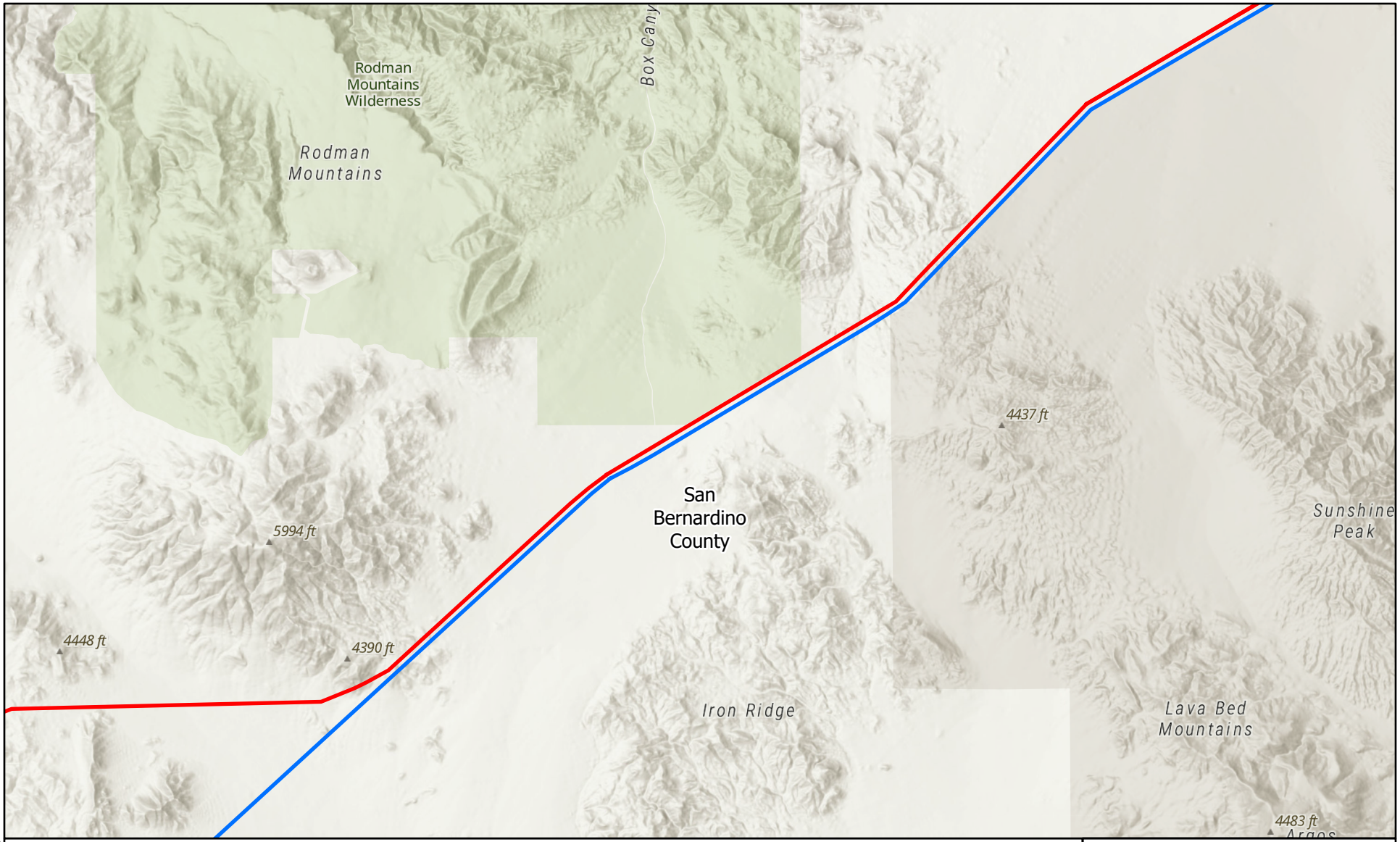
ELDORADO-PISGAH-LUGO 220 kV PROJECT

TRANSIT AND RAIL SERVICES

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.17-2



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ELDORADO-PISGAH-LUGO 220 kV PROJECT

TRANSIT AND RAIL SERVICES

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company ARCADIS

FIGURE 5.17-2

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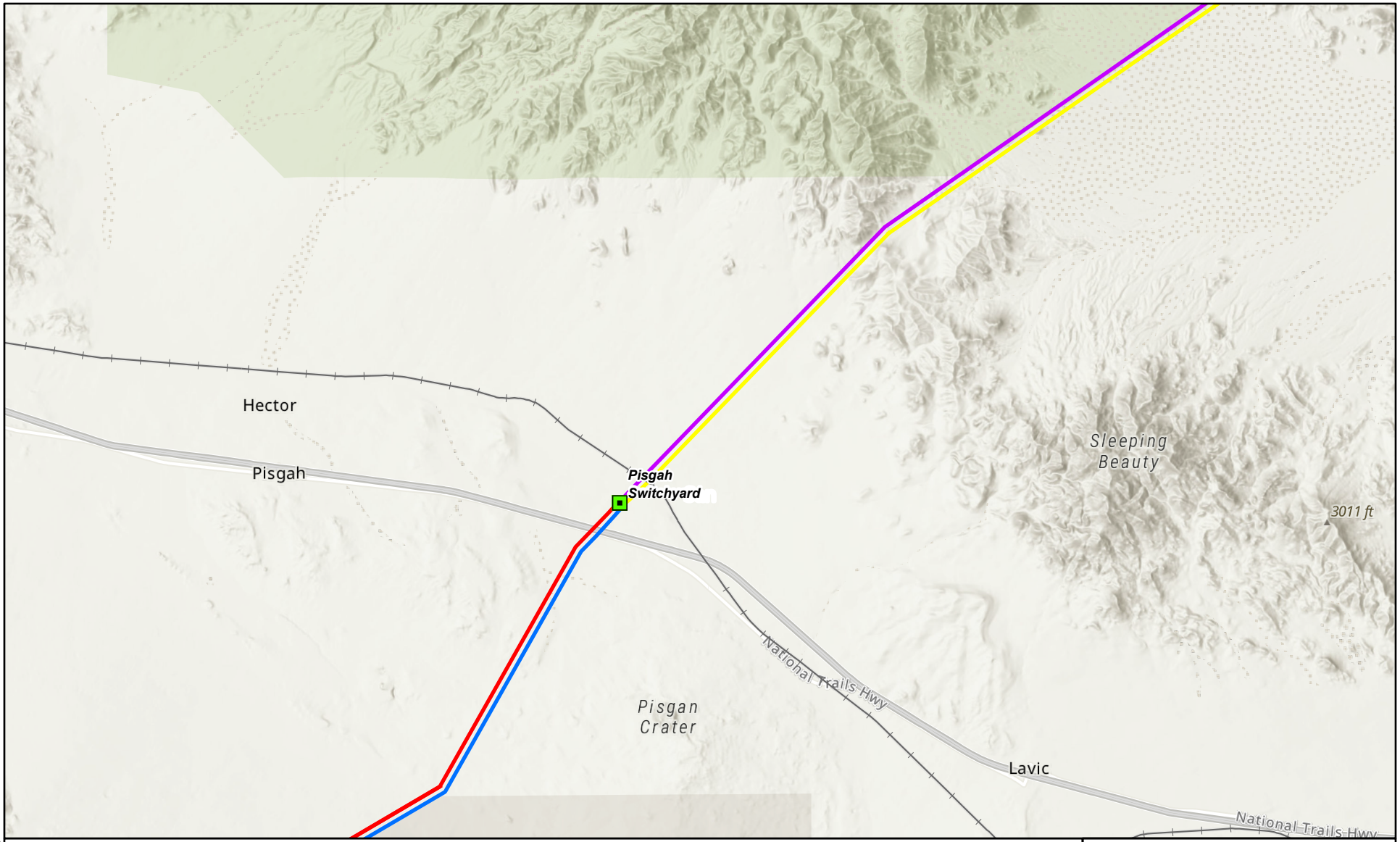

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TRANSIT AND RAIL SERVICES

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FIGURE 5.17-2

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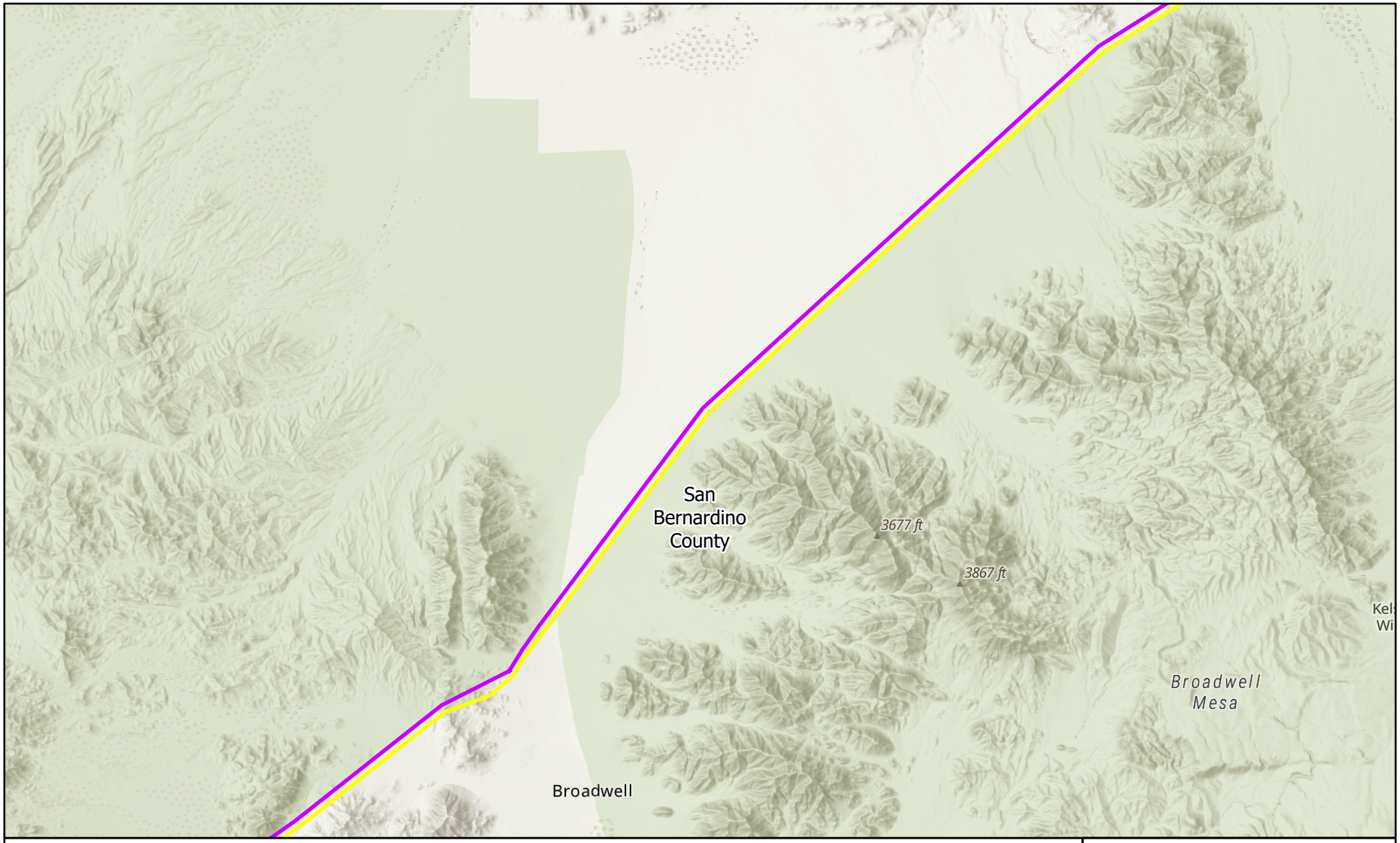

Legend

- Substations
- Segment 3
- Segment 4
- County Boundary
- Victor Valley Transit Bus Route 25
- Victor Valley Transit Bus Route 66
- Victor Valley Transit Bus Route 23
- California Rail Network

NOTES:
Sources: https://services2.arcgis.com/pXSDhBcg9ZHrVBu8/arcgis/rest/services/BusRoute_clip/FeatureServer; https://caltrans-gis.dot.ca.gov/arcgis/rest/services/CHrailroad/California_Rail_Network/FeatureServer

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ELDORADO-PISGAH-LUGO 220 kV PROJECT

TRANSIT AND RAIL SERVICES

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.17-2

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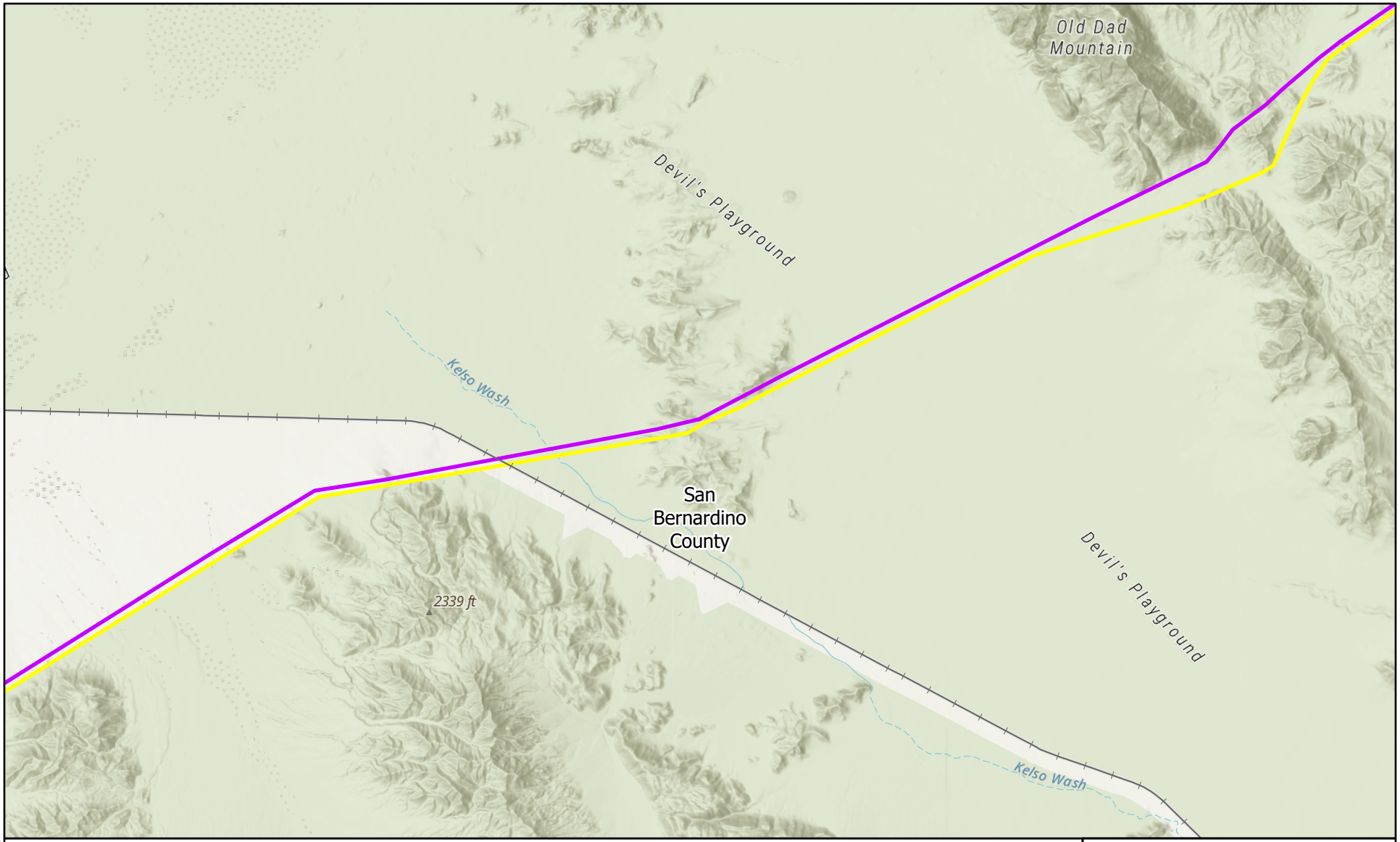

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- Substations
- Segment 3
- Segment 4
- County Boundary
- Victor Valley Transit Bus Route 25
- Victor Valley Transit Bus Route 66
- Victor Valley Transit Bus Route 23
- California Rail Network

NOTES:
Sources: https://services2.arcgis.com/pXSDhBcg9ZHrVBu8/arcgis/rest/services/BusRoute_clip/FeatureServer; https://caltrans-gis.dot.ca.gov/arcgis/rest/services/CHrailroad/California_Rail_Network/FeatureServer

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TRANSIT AND RAIL SERVICES

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company ARCADIS

FIGURE 5.17-2

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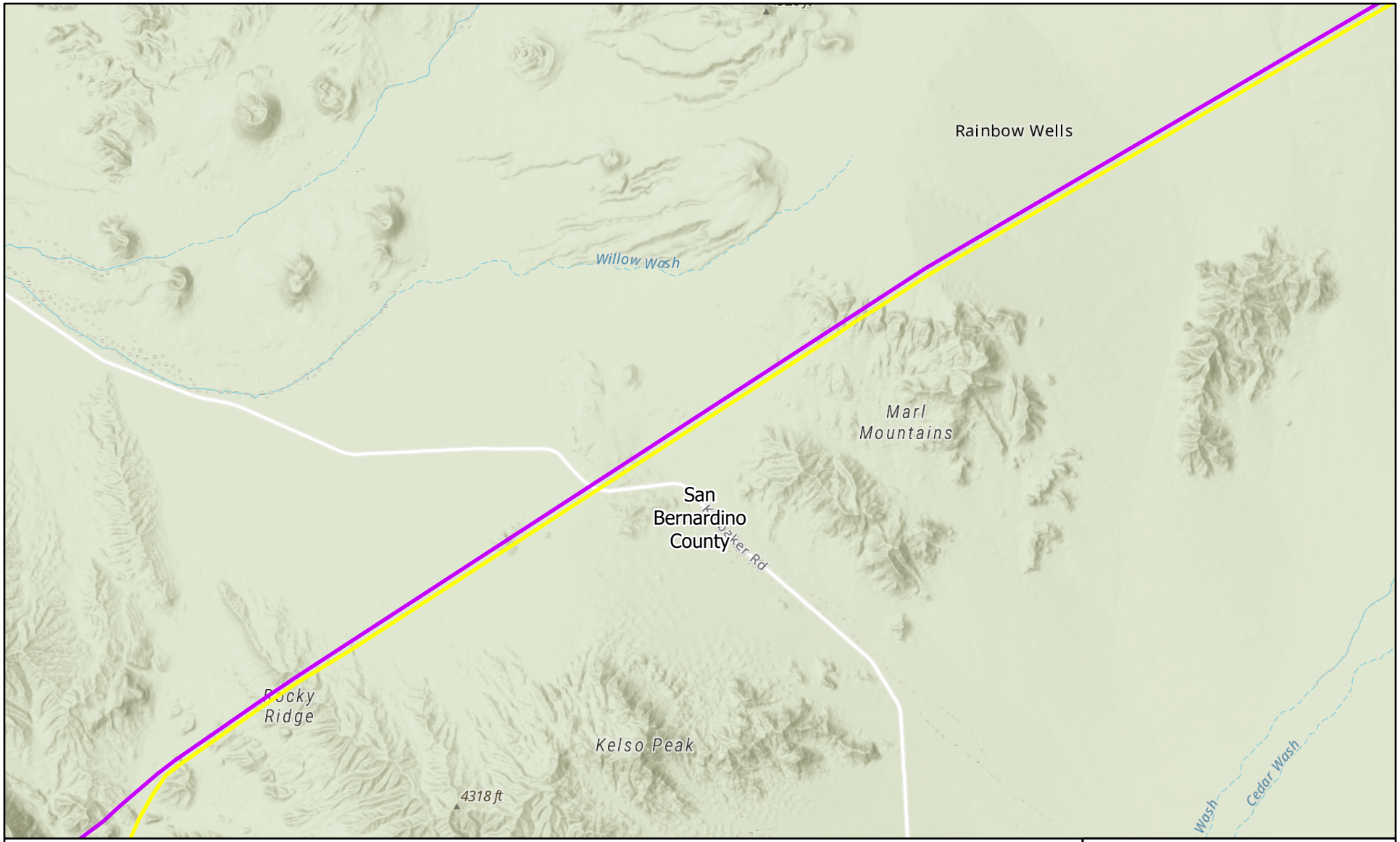

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- Substations
- Segment 3
- Segment 4
- County Boundary
- Victor Valley Transit Bus Route 25
- Victor Valley Transit Bus Route 66
- Victor Valley Transit Bus Route 23
- California Rail Network

NOTES:
Sources: https://services2.arcgis.com/pXSDhBcg9ZHrVBu8/arcgis/rest/services/BusRoute_clip/FeatureServer; https://caltrans-gis.dot.ca.gov/arcgis/rest/services/CHrailroad/California_Rail_Network/FeatureServer

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TRANSIT AND RAIL SERVICES

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
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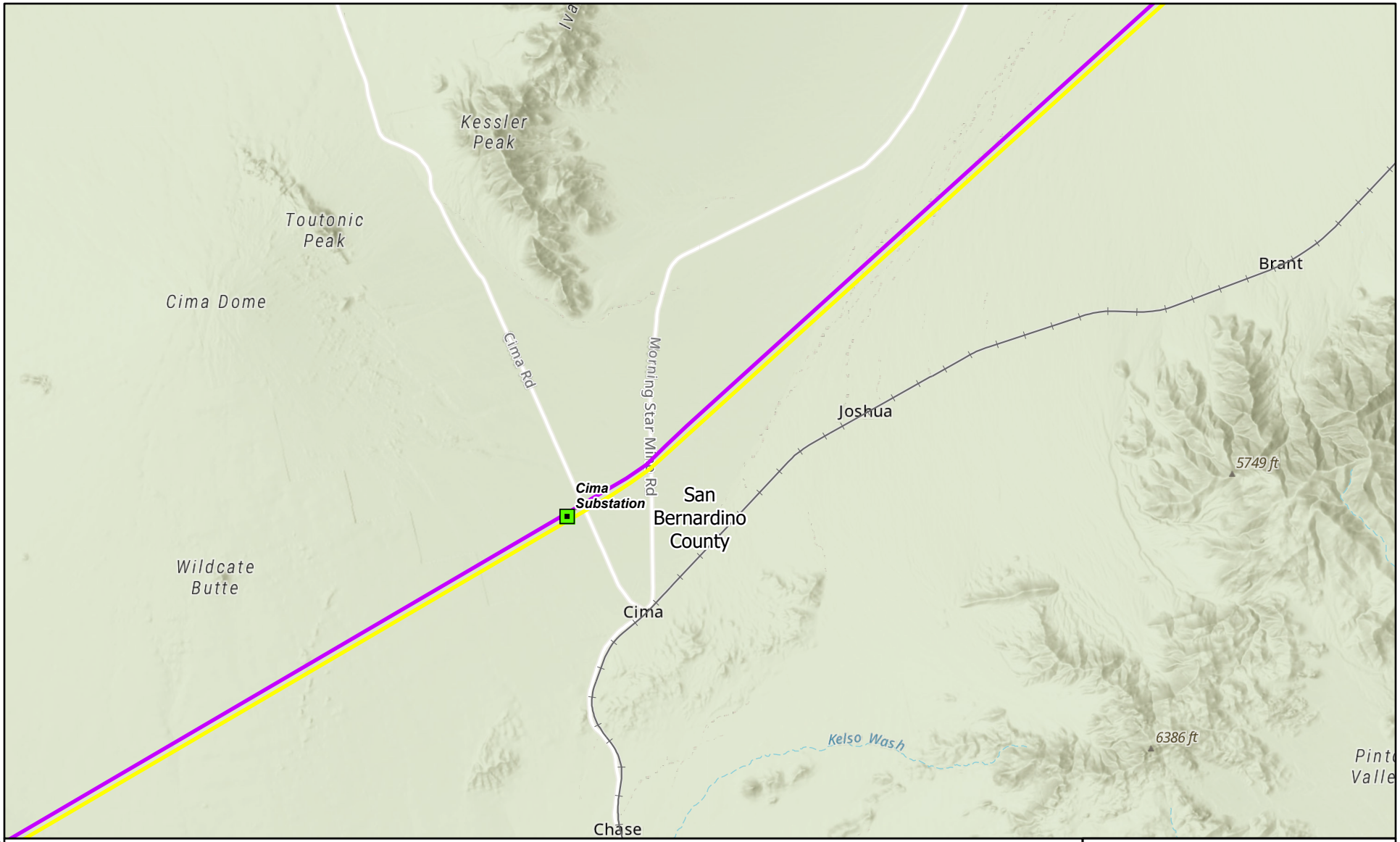
FIGURE 5.17-2



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- Substations
- Segment 3
- Segment 4
- County Boundary
- Victor Valley Transit Bus Route 25
- Victor Valley Transit Bus Route 66
- Victor Valley Transit Bus Route 23
- California Rail Network

NOTES:
Sources: https://services2.arcgis.com/pXSDhBcg9ZHrVBu8/arcgis/rest/services/BusRoute_clip/FeatureServer; https://caltrans-gis.dot.ca.gov/arcgis/rest/services/CHrailroad/California_Rail_Network/FeatureServer

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TRANSIT AND RAIL SERVICES

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FIGURE 5.17-2

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Legend

- Substations
- Segment 3
- Segment 4
- Segment 5
- Segment 6
- County Boundary
- Victor Valley Transit Bus Route 25
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- Victor Valley Transit Bus Route 23
- California Rail Network

NOTES:
Sources: https://services2.arcgis.com/pXSDhBcg9ZHrVBu8/arcgis/rest/services/BusRoute_clip/FeatureServer; https://caltrans-gis.dot.ca.gov/arcgis/rest/services/CHrailroad/California_Rail_Network/FeatureServer

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TRANSIT AND RAIL SERVICES

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
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FIGURE 5.17-2

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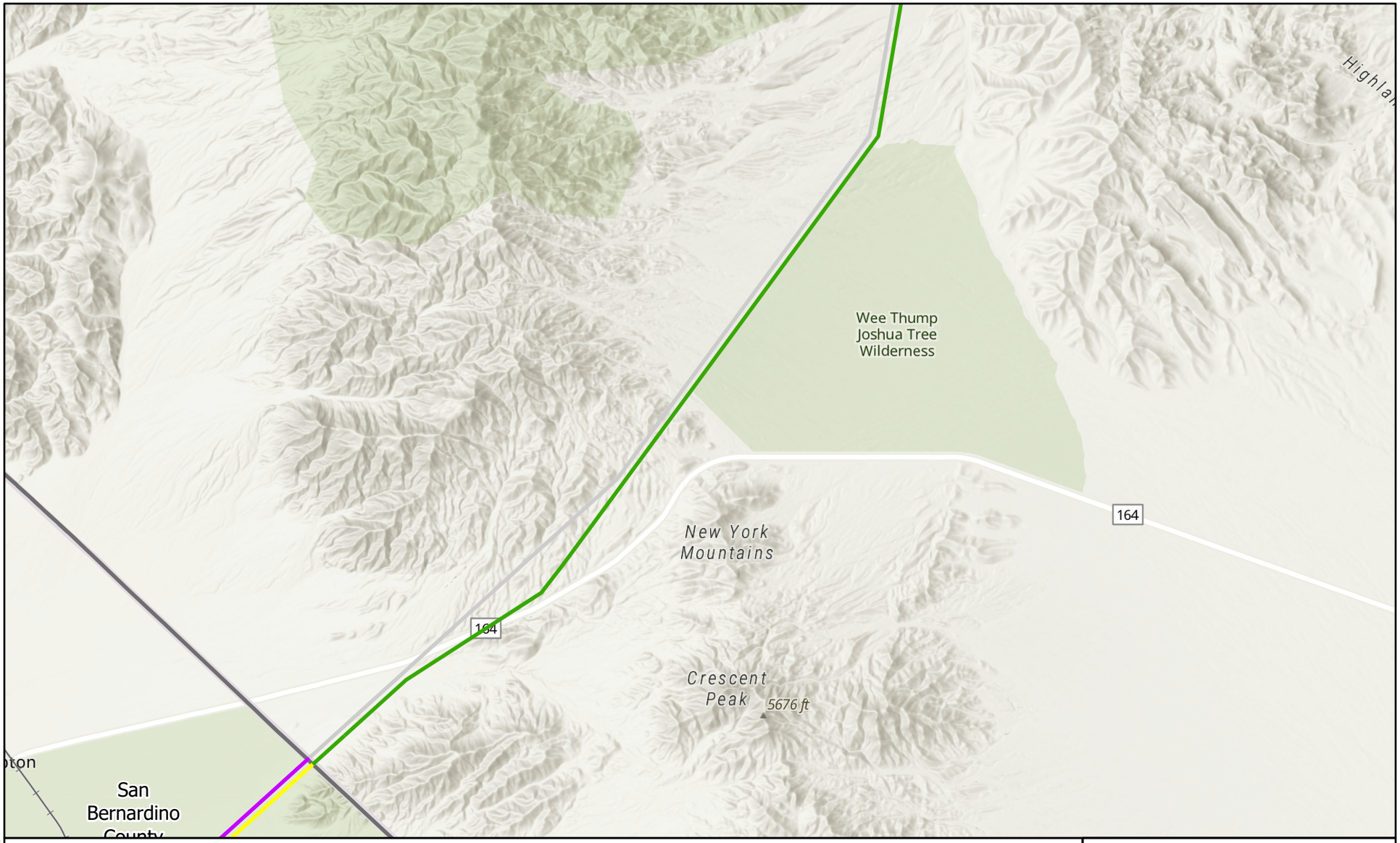

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- Substations
- Segment 3
- Segment 4
- Segment 5
- Segment 6
- County Boundary
- Victor Valley Transit Bus Route 25
- Victor Valley Transit Bus Route 66
- Victor Valley Transit Bus Route 23
- California Rail Network

NOTES:
Sources: https://services2.arcgis.com/pXSDhBcg9ZHrVBu8/arcgis/rest/services/BusRoute_clip/FeatureServer; https://caltrans-gis.dot.ca.gov/arcgis/rest/services/CHrailroad/California_Rail_Network/FeatureServer

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ELDORADO-PISGAH-LUGO 220 kV PROJECT

TRANSIT AND RAIL SERVICES

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
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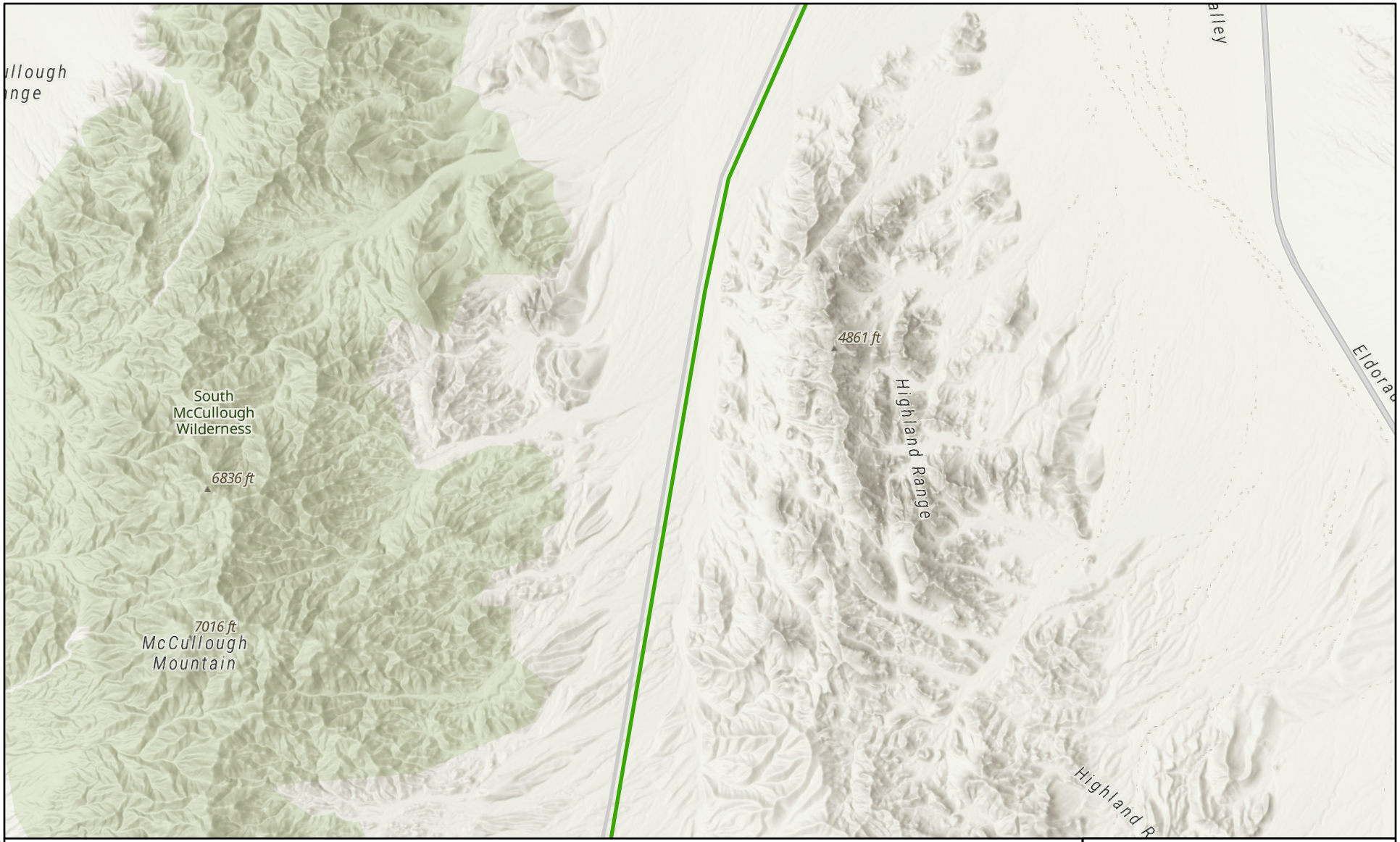
FIGURE 5.17-2



Legend

- Substations
- Segment 5
- Segment 6
- County Boundary
- Victor Valley Transit Bus Route 25
- Victor Valley Transit Bus Route 66
- Victor Valley Transit Bus Route 23
- California Rail Network

NOTES:
Sources: https://services2.arcgis.com/pXSDhBcg9ZHrVBu8/arcgis/rest/services/BusRoute_clip/FeatureServer; https://caltrans-gis.dot.ca.gov/arcgis/rest/services/CHrailroad/California_Rail_Network/FeatureServer

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ELDORADO-PISGAH-LUGO 220 kV PROJECT

TRANSIT AND RAIL SERVICES

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
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FIGURE
5.17-2

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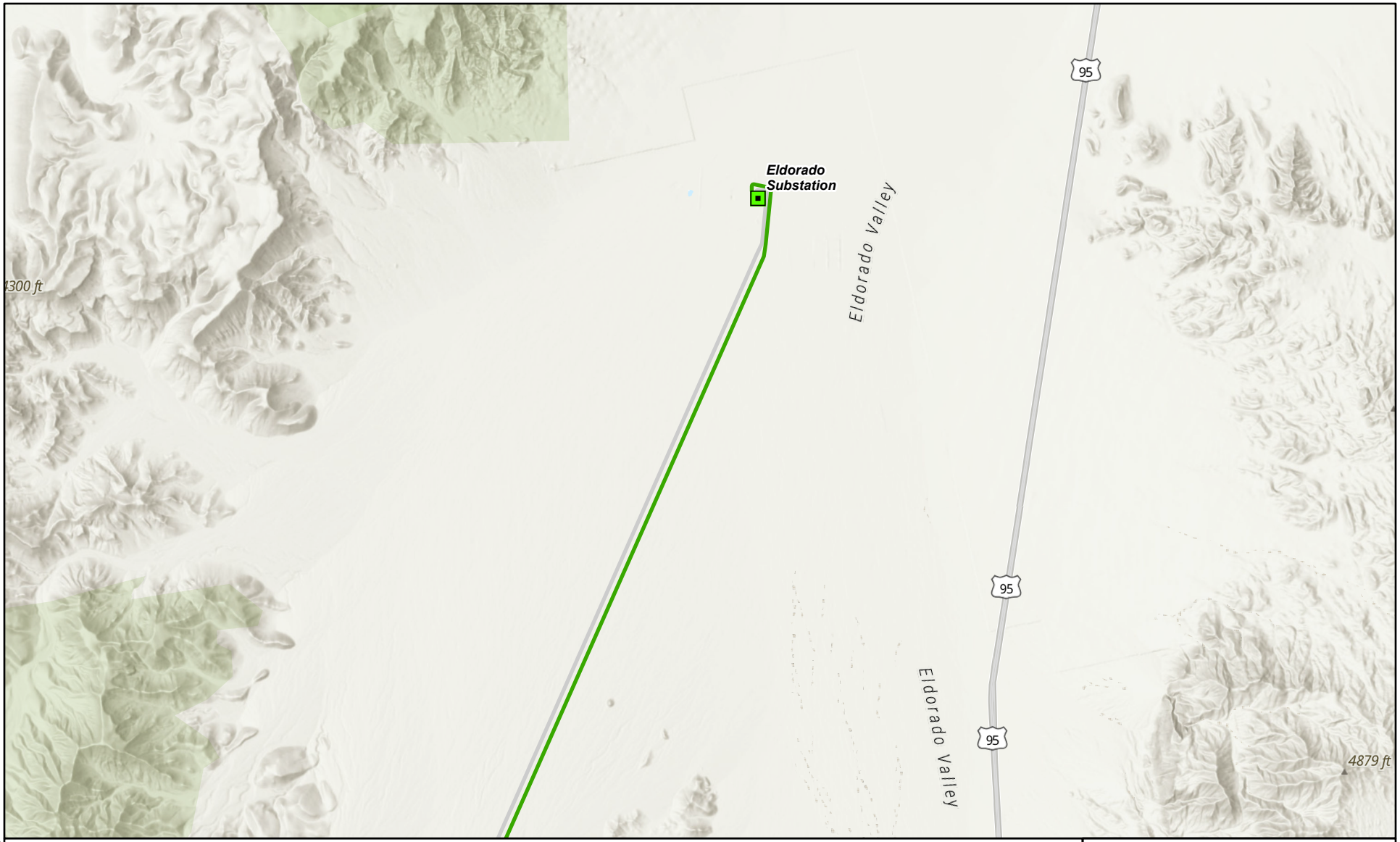

Legend

- Substations
- Segment 5
- Segment 6
- County Boundary
- Victor Valley Transit Bus Route 25
- Victor Valley Transit Bus Route 66
- Victor Valley Transit Bus Route 23
- California Rail Network

NOTES:
Sources: https://services2.arcgis.com/pXSDhBcg9ZHrVBu8/arcgis/rest/services/BusRoute_clip/FeatureServer; https://caltrans-gis.dot.ca.gov/arcgis/rest/services/CHrailroad/California_Rail_Network/FeatureServer

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ELDORADO-PISGAH-LUGO 220 kV PROJECT

TRANSIT AND RAIL SERVICES

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
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FIGURE 5.17-2

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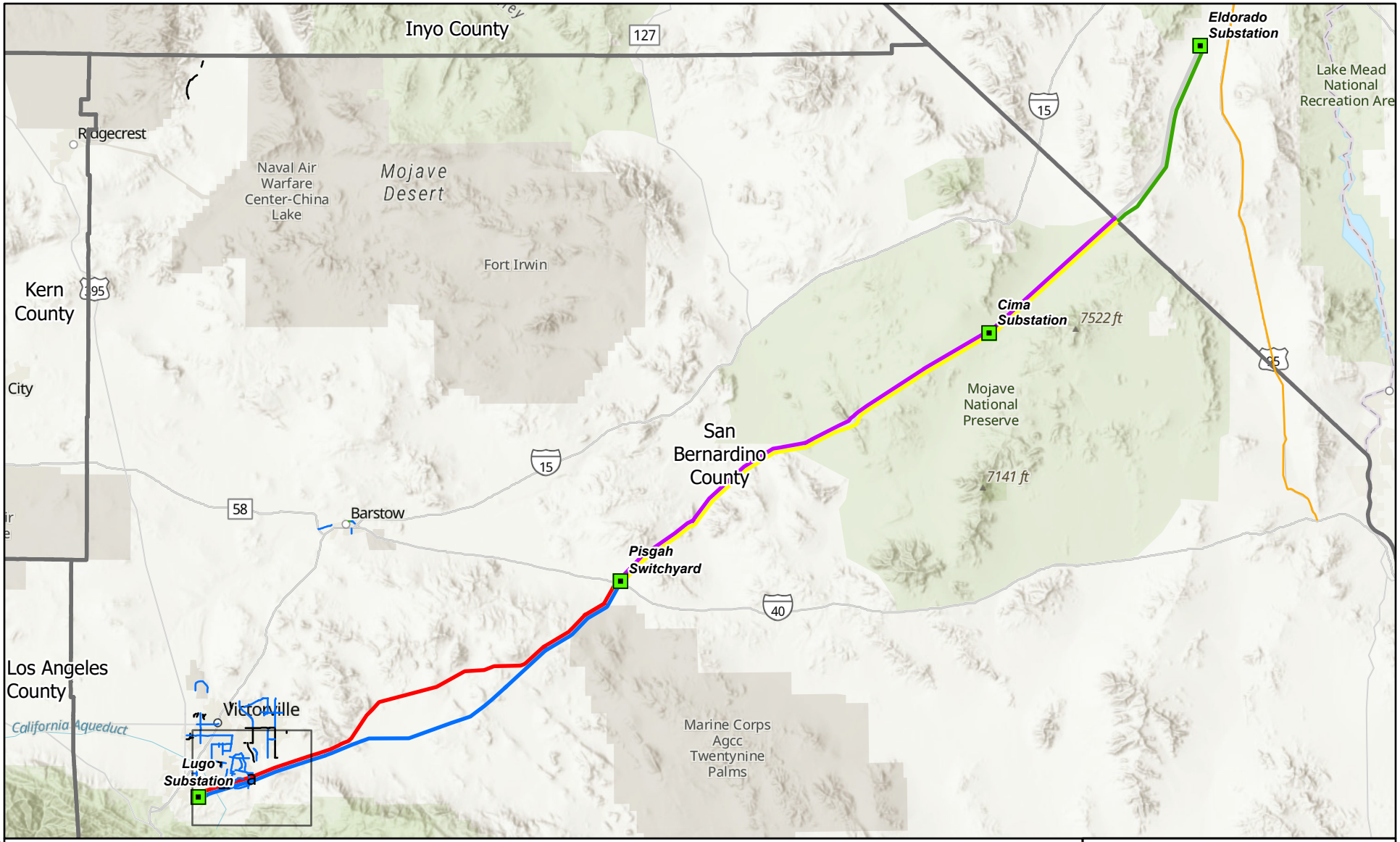
Inyo County
127
Eldorado Substation
Lake Mead National Recreation Are
15
Ridgecrest
Naval Air Warfare Center-China Lake
Mojave Desert
Fort Irwin
Kern County
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Cima Substation
7522 ft
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City
Mojave National Preserve
San Bernardino County
15
7141 ft
58
Barstow
Pisgah Switchyard
40
Los Angeles County
Victorville
California Aqueduct
Lugo Substation
Marine Corps Agcc Twentynine Palms
Legend
Substations
Segment 1
Segment 2
Segment 3
Segment 4
Segment 5
Segment 6
County Boundary
Map Index
Bike Path
Class I (Multi-Use Path)
Class II (Lane)
Class III (Route)
US Alternative Bicycle Corridor
NOTES:
Sources: https://sbcta-gis.sanbag.ca.gov/arcgis/rest/services/ATP2020/MapServer/4
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ELDORADO-PISGAH-LUGO 220 kV PROJECT
BICYCLE FACILITIES
SOUTHERN CALIFORNIA EDISON
An EDISON INTERNATIONAL Company
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FIGURE
5.17-3
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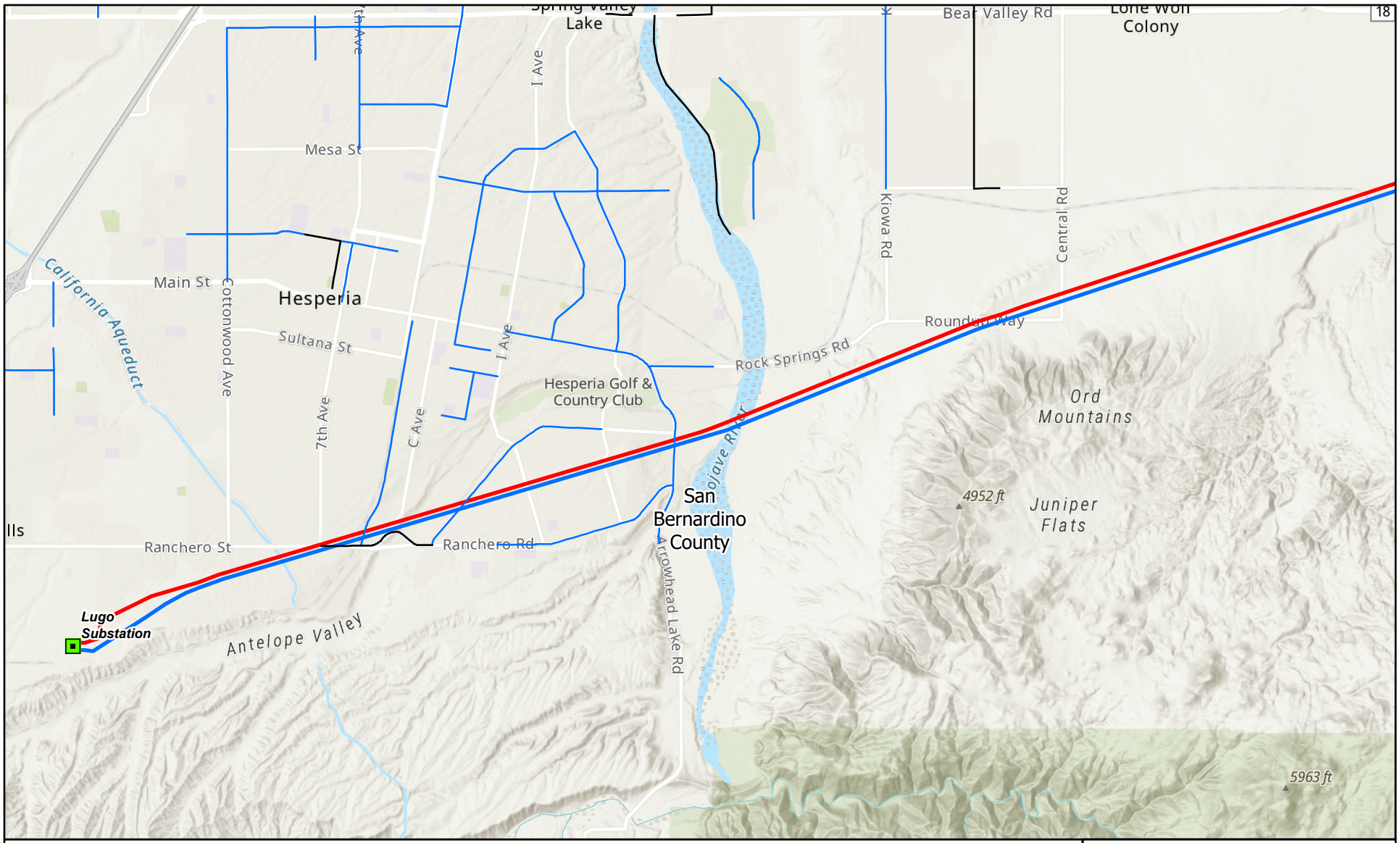

Legend

- Substations
- Segment 1
- Segment 2
- County Boundary

Bike Path

- Class I (Multi-Use Path)
- Class II (Lane)

Page 1 of 1

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Sources: https://sbcta-gis.sanbag.ca.gov/arcgis/rest/services/ATP2020/MapServer/4

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ELDORADO-PISGAH-LUGO 220 kV PROJECT

BICYCLE FACILITIES

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.17-3

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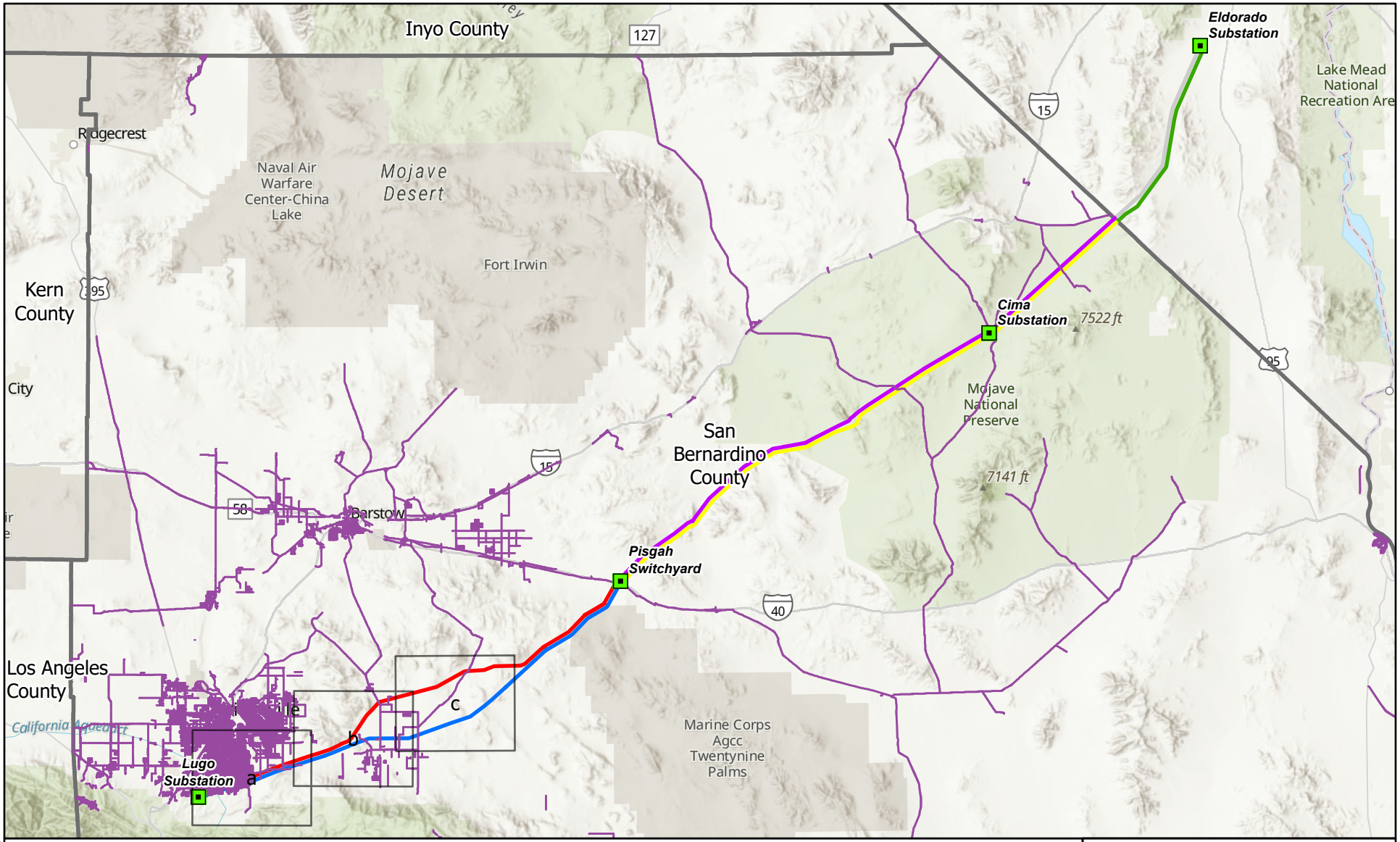

Legend

- Substations
- Segment 1
- Segment 2
- Segment 3
- Segment 4
- Segment 5
- Segment 6
- County Boundary
- Pedestrian Sidewalk
- Map Index

NOTES:
Sources: https://sbcta-gis.sanbag.ca.gov/arcgis/rest/services/Sidewalk/MapServer/0

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ELDORADO-PISGAH-LUGO 220 kV PROJECT

PEDESTRIAN FACILITIES

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.17-4

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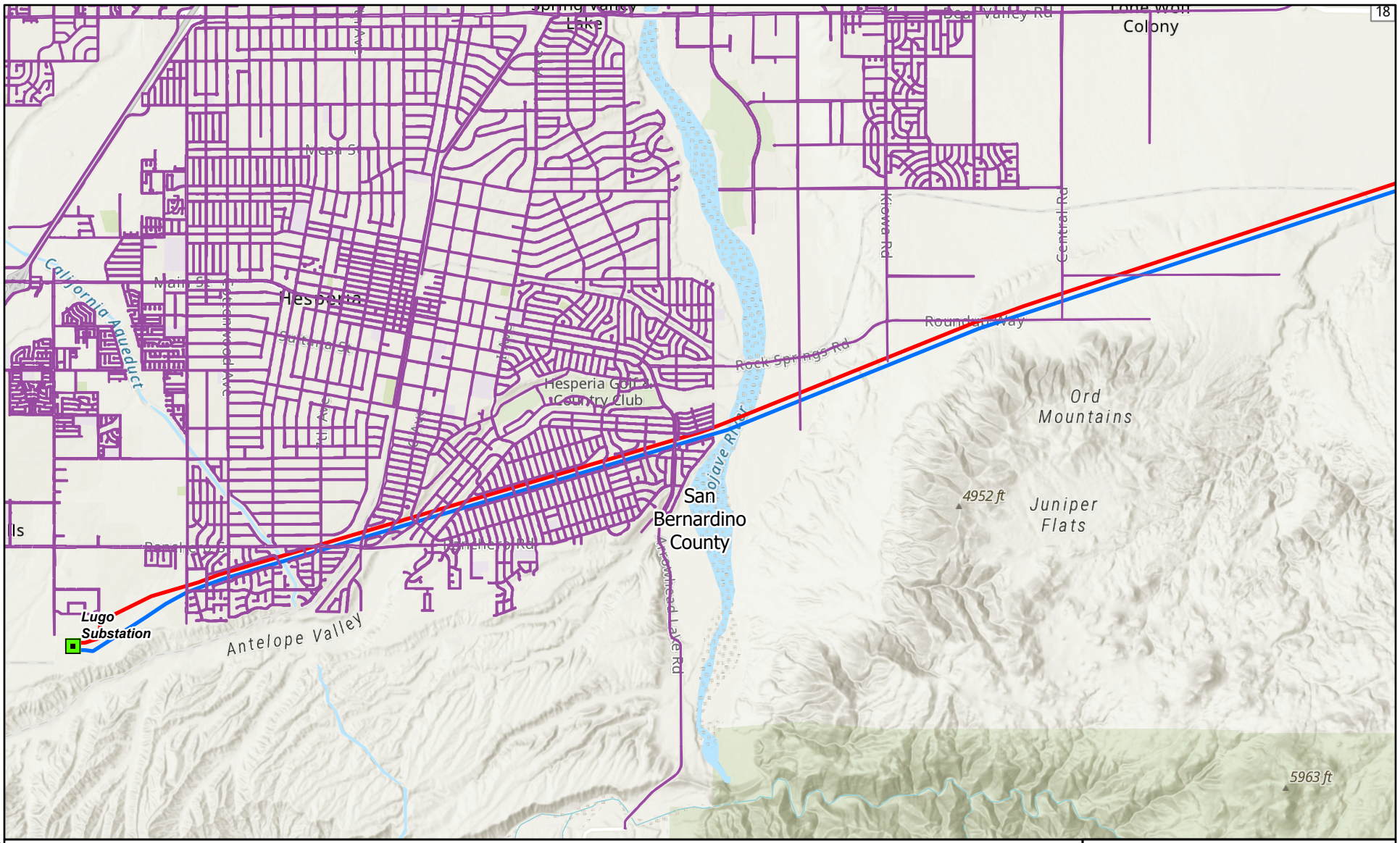

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NOTES:
Sources: https://sbcta-gis.sanbag.ca.gov/arcgis/rest/services/Sidewalk/MapServer/0

ELDORADO-PISGAH-LUGO 220 kV PROJECT

PEDESTRIAN FACILITIES

FIGURE 5.17-4

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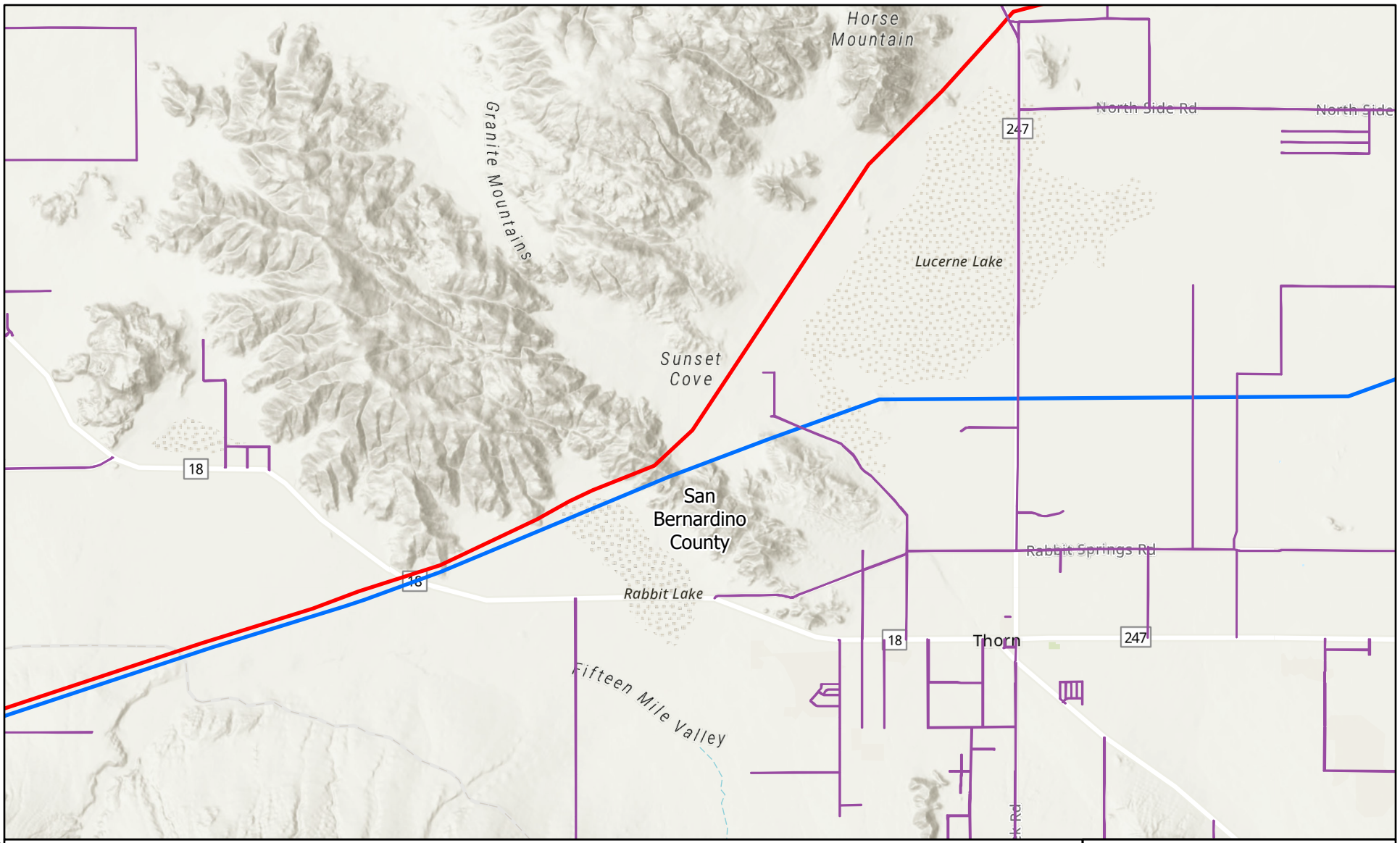

Legend

- Substations
- Segment 1
- Segment 2
- County Boundary
- Pedestrian Sidewalk

NOTES:
Sources: https://sbcta-gis.sanbag.ca.gov/arcgis/rest/services/Sidewalk/MapServer/0

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ELDORADO-PISGAH-LUGO 220 kV PROJECT

PEDESTRIAN FACILITIES

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.17-4

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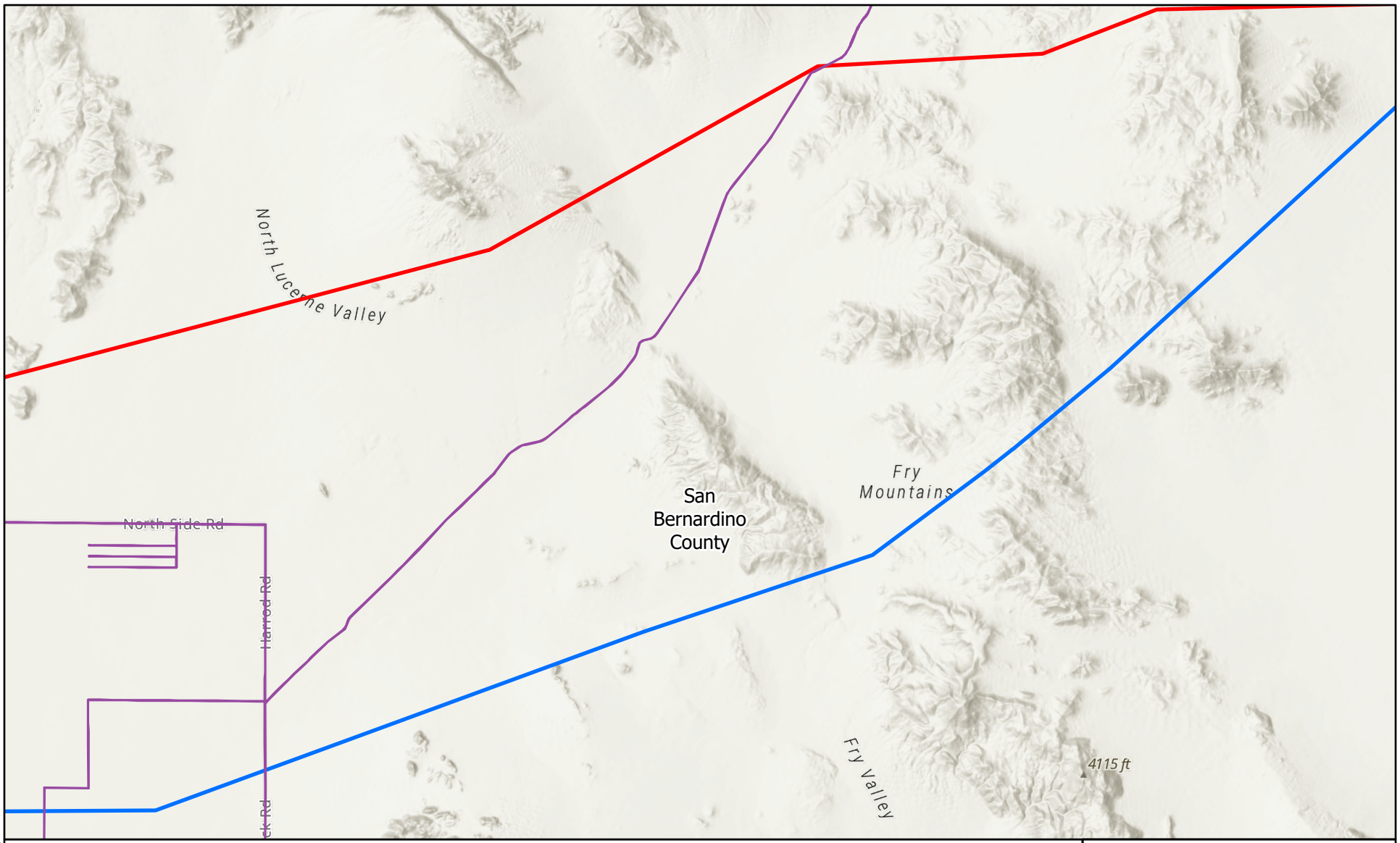

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Legend

- Substations
- Segment 1
- Segment 2
- County Boundary
- Pedestrian Sidewalk

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Sources: https://sbcta-gis.sanbag.ca.gov/arcgis/rest/services/Sidewalk/MapServer/0

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ELDORADO-PISGAH-LUGO 220 kV PROJECT

PEDESTRIAN FACILITIES

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.17-4

5.18 Tribal Cultural Resources

This section discusses tribal cultural resources or other resources potentially of importance to California Native American tribes along the EPL Project alignment, identifies applicable significance thresholds, assesses the EPL Project's impacts to these resources and their significance, and recommends measures to avoid or substantially reduce any effects found to be potentially significant. Assembly Bill (AB) 52 (Gatto 2014, Chapter 532), which was enacted in September 2014, sets forth both procedural and substantive requirements for analysis of tribal cultural resources as defined in Public Resources Code (PRC) section 21074, and consultation with California Native American tribes.

The environmental setting is based on information obtained from the EPL Project description, recent technical studies, and information gathered during outreach conducted by SCE. See Section 5.5, Cultural Resources, for a discussion of cultural resources more broadly, including archaeological and built environment historic resources.

5.18.1 Environmental Setting

The EPL Project APE/API is situated along approximately 176 miles (283 km) of transmission lines in San Bernardino County, California, and into Clark County, Nevada. The project area is within a single U.S. Environmental Protection Agency (EPA)-designated Level III Ecoregion: the Mojave Basin and Range as detailed in Section 5.5.1.1, Cultural Resources Environmental Setting—Physical Setting.

5.18.1.1 Outreach to Tribes

Coordination with California Native American groups potentially affected by the EPL Project is mandated at both the state and federal levels. The California Public Utilities Commission (CPUC) is the lead state agency for the EPL Project and coordinated with Native American tribes and bands pursuant to their responsibilities under Assembly Bill 52 (AB 52). The Bureau of Land Management (BLM) is the lead federal agency for the EPL Project and will conduct its own tribal consultation efforts pursuant to its responsibilities under Section 106 of the National Historic Preservation Act (NHPA).

The Native American Heritage Commission (NAHC) maintains two databases to assist cultural resources specialists in identifying cultural resources of concern to California Native Americans. On July 7, 2020, SWCA contacted the NAHC to search the Sacred Lands Files (SLF) and to request a list of Native American tribal representatives who may have a cultural affiliation with the EPL Project area. The NAHC responded on July 15, 2020, stating that the SLF database includes previously identified sacred sites in the vicinity of the EPL Project. In consideration of these sacred sites, SWCA was advised to contact two Native American tribes for more information. The NAHC also forwarded a list of 17 Native American groups or individuals that are culturally affiliated with the project area. SCE will reference the lists for outreach and coordination.

As included in 5.5.4.1, as the lead federal agency, the BLM will conduct Native American consultation for the project pursuant to Section 106 of the NHPA; the CPUC, as lead CEQA agency, will conduct Tribal consultation in compliance with AB 52.

5.18.1.2 Tribal Cultural Resources

As described in Section 5.5, Cultural Resources, 579 cultural resources have been previously recorded within 0.5 mile (0.8 km) of the EPL Project alignment; 222 are within the EPL Project APE/API. Of the 222 previously recorded cultural resources located within the EPL Project APE/API, 39 are considered to be prehistoric or multicomponent resources. Some of these resources may meet the definition of a tribal

cultural resource. No other potential tribal cultural resources have been identified to date within the EPL Project APE/API, although continuing tribal coordination would likely provide additional information on sites, features, places, cultural landscapes, sacred places, or objects with cultural value to a tribe in the EPL Project APE/API, as well as on the sacred lands identified by the NAHC as within the vicinity of the EPL Project.

5.18.1.3 Ethnographic Study

The ethnographic setting of the APE/API is relevant to the Great Basin and Mojave Desert area. The ethnographic period of the region encompasses the time immediately prior to European contact through the mid-nineteenth century due to the relative isolation of indigenous peoples in the Great Basin and Mohave Desert. A discussion of the key characteristics of this cultural area is presented in Section 5.5.1.3, Cultural Resources Environmental Setting—Ethnographic Background.

According to available ethnographic maps (Bean and Smith 1978:570; Kelly and Fowler 1978; Kroeber 1925; NAHC 2022; Sutton et al. 2007:232), the project area falls within the traditional territory of the Desert Serrano subgroup of the Serrano and the Southern Paiute or Chemehuevi. For a discussion of each group, please refer to Section 5.5.1.3, Cultural Resources—Ethnographic Background. The following reviews locations that are important to these indigenous groups from available literature.

By the time of Spanish colonization in AD 1769, California was the home of approximately 300,000 indigenous people, comprising a complex of cultures that encompassed 74 languages and perhaps 500 distinct ethnic groups (Mithun 2006; Moratto 1984). Population density among California Native American groups varied according to the availability and dependability of local resources. The effect of Spanish settlement and missionization in California marks the beginning of a devastating disruption of native culture and lifeways, with forced population movements, loss of land and territory (including seasonal locations like traditional hunting and gathering locales), enslavement, and decline in population numbers from disease, malnutrition, starvation, and violence.

Early accounts of indigenous cultures in California come from the pioneers, explorers, and missionaries who wrote about native cultures and lifeways during the Spanish settlement and missionization period. These so-called “Mission ethnographies,” although very descriptive and detailed, still followed a colonial agenda, failing to report on the relationship of native Californians to their traditional territories. Not until the late 1800s and early 1900s did anthropologists began to conduct ethnographic research in the region, mainly attracted by the environmental conditions of the California portion of the southwestern Great Basin, which includes the Mojave Desert, which provided ample research opportunity on human–environment relationship. Ethnographic works from this earlier time, such as that of Alfred L. Kroeber, Robert F. Heizer, and John P. Harrington, focused on salvaging information from surviving native Californian elders who remembered traditional life (Vane 1992:336).

5.18.1.3.1 Locations Important to the Serrano/Desert Serrano

The Serrano people occupied the Mountain, North Desert, and East Desert regions of San Bernardino County. Accounts and records dating to the late 1700s and early 1800s mention Desert Serrano villages along the Mojave River near today’s municipalities of Barstow and Daggett (Coues 1900:Vol. 1:241–248). The APE/API overlaps the Mojave River near Daggett, and also west of Barstow, in the vicinity of Lenwood; Protohistoric Serrano village locations lie possibly within or adjacent to the APE. Beattie (1955) suggested that Desert Serrano settlements were generally spaced at 10-mile (16-km) intervals along the river.

Serrano villages and placenames along the Mojave River identified by Fr. Joaquín Nuez southwest of present-day Barstow include Atongaibit, Topipabit, Cocama, and Sisugenat; the village of Angayaba between Barstow and Dagget; and the villages of Asambeat, and Guanachique east of Daggett (Earle 2003, 2005 in Byerly 2018). Nuez also noted a millingstone quarry at Elephant Mountain, near Forks-of-the-Road or Camp Cady, in the general vicinity of Angayaba (Schneider, Lerch, and Smith 1995; Walker 1986 in Byerly 2018). Earle places the village of Asambeat along the Mojave River east of Angayaba, and Guanachique in the vicinity of Soda Lake (Earle 2003 in Byerly 2018). Sutton and Earle (2017) synthesized multiple ethnographic and historical accounts and mapped the approximate locations of these three villages along the Mojave River, as well as a fourth unnamed village location noted by Garcés, which may possibly be Angayaba.

Other important places to the Serrano in the Daggett area include a salt deposit known to the Mojave as Yava'avi-ath'I, as well as a mountain noted by Nuez as west or south of Daggett called Hamuha or Ahamoha, where Moha, an elderly female Desert Serrano informant Kroeber interviewed in the early twentieth century, was born (Earle 2003 in Byerly 2018; Kroeber 1908, 1925, 1955). The mountains, hills, and valleys along the upper Mojave River, including the Granite, Newberry, and Ord mountains, were collectively referred to as Temtak (Earle 2003 in Byerly 2018).

5.18.1.3.2 Locations Important to the Southern Paiute

The extensive traditional territory of the Southern Paiute ranged from the Colorado Plateau to the Mojave Desert and including the Colorado River basin and numerous small mountain ranges (Kelley and Fowler 1986). Numerous linear travel routes have been documented for the Southern Paiute/Chemehuevi, including trade routes and sacred trails (Fowler 2009). Several major trade routes and trails developed in the past 5,000 years to facilitate trade between the Pacific Coast and interior locales (Harner 1957 in Fowler 2009; Heizer 1941, 1978), and the Chemehuevi still used this network during the Contact period (1770s; Davis 1961; Sample 1950 in Fowler 2009). Sacred trails, which can overlap with secular trade routes and other pathways, are connected to songs and stories and often contain place names for water sources and other geographic features across the landscape. These songs often recount epic journeys by ancestors and spiritual beings, connecting the ephemeral spiritual world with the physical landscape, and providing an important vehicle for the transmission of information about the landscape and how to move across it (Kelly 1932–1934; Laird 1976 in Fowler 2009).

Numerous geoglyphs (intaglios), including anthropomorphic and geometric designs, are found in the vicinity of the Colorado River, within and adjacent to the ethnographic region of the Chemehuevi, as well as the Mojave among others. While one Chemehuevi informant interviewed in the 1930s stated that these features predated the Chemehuevi's arrival in the area (Kelly 1934 in Fowler 2009), other Southern Paiute informants maintain that Numic-speaking peoples have occupied the region since time immemorial (Stoffle and Zedeño 2001).

Other places important to the Chemehuevi include caves, mountains, and mesas both potentially in the vicinity of the EPL Project alignment, as well as outside of the APE/API such as locations in Nevada and Arizona (see Byerly 2018). Viewsheds from locations of higher elevations may represent important TCR locations for the Chemehuevi.

5.18.2 Regulatory Setting

The primary federal and state laws, regulations, and policies that pertain to the EPL Project are summarized in Section 5.5, Cultural Resources. Section 5.5.5, Cultural Resources–Regulatory Setting, summarizes regulatory ordinances and other local policies that concern cultural resources, which may also be relevant to tribal cultural resources if tribal cultural resources are determined to also be unique

archaeological or historical resources. Tribal cultural resources include sites, features, places, cultural landscapes, and sacred places or objects that have cultural value or significance to a tribe. A tribal cultural resource is one that is either (1) listed in, or eligible for listing in, the California Register of Historical Resources (CRHR) or local register of historical resources (see Section 5.5, Cultural Resources, for more information about the CRHR) or (2) a resource that the CEQA lead agency, at its discretion and supported by substantial evidence, determines is significant pursuant to the criteria in PRC Section 5024.1, subdivision (c) (see PRC Section 21074). Further, because tribes traditionally and culturally affiliated with a geographic area may have specific expertise concerning their tribal cultural resources, AB 52 sets forth requirements for notification and invitation to government-to-government consultation between the CEQA lead agency and geographically affiliated tribes (PRC Section 21080.3.1[a]). Under AB 52, lead agencies must avoid damaging effects to tribal cultural resources, when feasible, regardless of whether consultation occurred or is required.

Tribal cultural resources per PRC Section 21074 (a)(1)(A)–(B) are defined as either of the following:

1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:

a) Included or determined to be eligible for inclusion in the California Register of Historical Resources.

b) Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.

2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

a) A cultural landscape that meets the criteria of subdivision (a) is a tribal cultural resource to the extent that the landscape is geographically defined in terms of the size and scope of the landscape.

b) A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a "nonunique archaeological resource" as defined in subdivision (h) of Section 21083.2 may also be a tribal cultural resource if it conforms with the criteria of subdivision (a).

From the Technical Advisory: AB 52 and Tribal Cultural resources in CEQA from the Governor's Office of Planning and Research, a definition of what constitutes "substantial evidence" is presented:

> *Evidence that may support such a finding could include elder testimony, oral history, tribal government archival information, testimony of a qualified archaeologist certified by the relevant tribe, testimony of an expert certified by the tribal government, official tribal government declarations or resolutions, formal statements from a certified Tribal Historic Preservation Officer, or historical/anthropological records.*

5.18.3 Impact Questions

5.18.3.1 Significance Criteria

The significance criteria for assessing the impacts to tribal cultural resources come from the CEQA Environmental Checklist, which notes that a project causes a potentially significant impact if it would:

Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the

size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

a) Listed or eligible for listing in the CRHR, or in a local register of historical resources as defined in Section 5020.1(k), or
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

5.18.3.2 Additional CEQA Impact Questions

There are no CPUC-identified additional CEQA impact questions.

5.18.4 Impact Analysis

Under AB 52, lead agencies must avoid damaging effects to tribal cultural resources, when feasible, regardless of whether consultation occurred or is required. PRC Section 21084.2 states, "A project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment." Lead agencies are directed to avoid damaging effects to tribal cultural resources when feasible. If measures are not otherwise identified in consultation with affected tribes to mitigate a substantial adverse change to a tribal cultural resource, the examples of measures provided in PRC Section 21084.3 may be considered, if feasible.

Tribal cultural resources are known to be located in the EPL Project APE/API based on the results of the SLF search conducted by the NAHC. As such, the EPL Project has the potential to affect previously unidentified tribal cultural resources that may be inadvertently discovered during construction activities. Relevant material also considered in this impact analysis includes information summarized in Section 5.5.7, Cultural Resources—Impact Analysis.

5.18.4.1.1 Would the Project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is: Listed or eligible for listing in the CRHR, or in a local register of historical resources as defined in Section 5020.1(k), or A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?

5.18.4.1.1.1 Construction

No Determination. This analysis would be provided under separate cover following the completion of pedestrian surveys and approval of technical report(s) by the responsible agency(ies).

5.18.4.1.1.2 Operations

Less than Significant Impact. As presented in Chapter 3, SCE is currently performing O&M activities, including inspections, along the transmission lines included under the EPL Project. No material changes in O&M activities are anticipated with implementation of the EPL Project. Maintenance would occur as needed and could include activities such as repairing conductors, washing or replacing insulators, repairing or replacing other hardware components, replacing structures, tree trimming, brush and weed

control, and access road maintenance. Most regular O&M activities of overhead facilities are performed from existing access roads with no surface disturbance. Repairs to facilities, such as repairing or replacing structures, could occur in undisturbed but previously surveyed areas. With implementation of standard measures similar to those described in Section 3.13.2.7 to ensure compliance with applicable laws and regulation, operation impacts to a tribal cultural resource would be less than significant.

5.18.4.2 Information Provided by Tribes

Consultation will occur between the CPUC and the Tribes as well as the BLM and the Tribes. The Tribes identified by the NAHC have not been notified of the Project and consequently no tribal consultation or tribal input on the project or Tribal Cultural Resources has occurred.

5.18.5 CPUC Draft Environmental Measures

There are no CPUC Draft Environmental Measures identified for the Tribal Cultural Resources resource area.

5.19 Utilities and Service Systems

This Section of the PEA describes the utilities and service systems in the area of the EPL Project, as well as the potential impacts that may result during construction and operation of the EPL Project.

5.19.1 Environmental Setting

This discussion describes the existing utilities and service systems (electric, natural gas, water, sewage and wastewater treatment, landfills, and other utilities) in the vicinity of the EPL Project area.

5.19.1.1 Utility Providers

Utility providers that serve the areas along the EPL Project alignment are as follows:

- Electricity, Segments 1-4: SCE
- Natural gas, Segments 1-2: Southwest Gas
- Water, Segments 1 and 2: Hesperia Water District, Stewart Water Company, Inc., Mariana Ranchos County Water District, Juniper Riviera County Water District, and Apple Valley Heights County Water District

5.19.1.2 Utility Lines

The EPL Project crosses or immediately parallels transmission lines, petroleum pipelines, and natural gas pipelines; these are displayed in Figure 5.19-1.

5.19.1.2.1 Natural Gas

Natural gas transmission lines intersected by the EPL Project alignment are addressed in Section 5.9.1.4 above. The EPL Project is located within the service territory of Southwest Gas; based on the provision of service, natural gas distribution lines may be present in the City of Hesperia.

5.19.1.2.2 Electric

The EPL Project alignment is crossed by a number of transmission lines that are not related to or included under the EPL Project: Segments 1 and 2 are crossed by four SCE 115 kV subtransmission lines and are crossed in three locations by two SCE 500 kV transmission lines. Segments 3 and 4 are not crossed by any transmission or subtransmission lines. The EPL Project alignment crosses numerous distribution voltage lines.

5.19.1.2.3 Telecommunications

Underground telecommunications lines cross the EPL Project alignment in the western portion of Segments 1 and 2.

5.19.1.2.4 Storm Water

Storm water conveyances are found where the EPL Project alignment is located adjacent to public roadways in Segments 1 and 2.

5.19.1.2.5 Water and Sewer

Water supply and sewerage infrastructure is generally found only in discrete locations across the project alignment in the vicinity of the City of Hesperia.

5.19.1.3 Approved Utility Projects

Approved utility projects within 2 miles of the EPL Project alignment are listed in Section 7.1.1.

5.19.1.4 Water Supplies

The western portion of the EPL Project alignment is located within the Mojave Integrated Regional Water Management (IRWM) Region. Multiple public and private water districts provide water service within the IRWM Region. The purpose of the IRWM is to identify and implement water management solutions on a regional scale that increase regional self-reliance, reduce conflict, and manage water to concurrently achieve social, environmental, and economic objectives.

The entirety of the Project in San Bernardino County is located in what is referred to as the Desert Region of the County. The Desert Region is comprised of 41 water purveyors and approximately 120 privately-owned single sources. Most of the single sources in the rural portions of the Desert Region are for commercial businesses or private properties. The Mojave Water Agency is the primary water basin agency, but there are also water districts and CSDs that provide distribution services for water supplies (San Bernardino County 2007).

The Mojave Water Agency (MWA) is a regional wholesale provider responsible for managing groundwater resources and for ensuring a reliable water supply within its service area boundaries. The majority of Segments 1 and 2 are located within the MWA service area boundary. Water supply in the MWA service area comes from numerous sources, which include natural surface water flows, wastewater imports from outside the MWA service area, State Water Project imports, and return flow from pumped groundwater not consumptively used (MWA 2014). Almost all of the water use within the MWA service area is supplied by pumped groundwater. Water demand data for the Mojave IRWM Plan region are presented in Table 5.19-1.

Table 5.19-1. Water Demand (acre-feet per year), Mojave IRWM Region

Subregion (Project Segments)	2020	2030
Alto	88,323	104,128
Este	7,135	7,487
Morongo	6,728	7,070
Baja	27,271	20,065

Source: Mojave Water Agency 2014

5.19.1.4.1 Wastewater Treatment

Sewage and wastewater treatment services are provided by the Hesperia Water District and the Victor Valley Wastewater Reclamation Authority (VVWRA). Wastewater collected by the Hesperia Water District is treated at the Regional Wastewater Treatment Plant operated by VVWRA; this plant has a treatment design capacity of approximately 18 million gallons per day and is currently treating approximately 11 million gallons per day (Hesperia Water District 2015; VVWRA 2018). Areas not served by Hesperia Water District or the VVWRA utilize septic systems or other means of disposal.

5.19.1.5 Landfills and Recycling

The County of San Bernardino Solid Waste Management Division (SWMD) is responsible for the operation and management of the solid waste disposal system in the county. The disposal system consists in part of five regional landfills; of these, one is located in the vicinity of the EPL Project alignment: the Class III Victorville Sanitary Landfill, located approximately 12.7 miles from the EPL Project alignment

in Segments 1 and 2. The Victorville Sanitary Landfill has a permitted capacity of 93.4 million cubic yards, and a remaining capacity of more than 79 million cubic yards (CalRecycle 2022).

There are no recycling centers along the EPL Project alignment of a size appropriate to process the mass and volume of recyclable materials that would be generated by the EPL Project.

5.19.2 Regulatory Setting

5.19.2.1 Regulatory Setting

Federal, State, and local regulations were reviewed for applicability to the EPL Project. Section 5.10, Hydrology and Water Quality, provides a detailed discussion of regulations related to water quality and storm water discharge.

5.19.2.1.1 Federal

5.19.2.1.1.1 Clean Water Act

The CWA was originally enacted in 1948 and has been amended numerous times, with significant expansions in 1972 and 1977. The CWA's main objectives are to maintain and restore the chemical, physical, and biological integrity of waters through the authorization of standards. Authority for the implementation and enforcement of the CWA lies primarily with the USEPA and its delegated state and local agencies, namely the SWRCB, and in the EPL Project area, the Central Valley and Los Angeles RWQCB.

5.19.2.1.2 State

5.19.2.1.2.1 Integrated Waste Management Act of 1989

The Integrated Waste Management Act of 1989, also known as Assembly Bill (AB) 939, mandates that California's jurisdictions divert 50 percent of their solid waste from landfills. CalRecycle is under the umbrella of the California EPA and is responsible for the implementation of AB939.

5.19.2.1.2.2 California Code of Regulations (Title 27)

Title 27 (Environmental Protection) of the California Code of Regulations defines regulations for the treatment, storage, processing, and disposal of solid waste. The SWRCB maintains and regulates compliance with Title 27 (Environmental Protection) of the California Code of Regulations. The compliance of the Proposed Action would be enforced by the Central Valley (Region 5) and the Los Angeles (Region 4) RWQCBs.

5.19.2.1.3 Local

The CPUC has sole and exclusive state jurisdiction over the siting and design of the EPL Project. Pursuant to GO 131-D, Section XIV.B, "Local jurisdictions acting pursuant to local authority is preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC's jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters." Consequently, public utilities are directed to consider local regulations and consult with local agencies, but the county and cities' regulations are not applicable as the county and cities do not have jurisdiction over the EPL Project. Accordingly, the following discussions of local land use regulations is provided for informational purposes only.

5.19.2.1.3.1 San Bernardino County Countywide Plan, Infrastructure & Utilities Element

The Infrastructure & Utilities Element of the County of San Bernardino Countywide Plan contains objectives and policies related to the provision of utilities, including the following:

> Policy IU-4.1 Landfill capacity
>
> We maintain a minimum ongoing landfill capacity of 15 years to serve unincorporated waste disposal needs.
>
> Policy IU-5.4 Electric transmission lines
>
> We support the maintenance of existing and development of new electric transmission lines along existing rights-of-way and easements to maintain the stability and capacity of the electric distribution system in southern California.

5.19.2.1.3.2 City of Hesperia General Plan 2010

The City of Hesperia General Plan 2010 contains objectives and policies related to the provision of utilities; none are relevant to the EPL Project.

5.19.3 Impact Questions

5.19.3.1 Impact Questions

The significance criteria for assessing the impacts to public services are derived from the CEQA Environmental Checklist. According to the CEQA Checklist, a project would cause a potentially significant impact if it:

- Requires or results in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects
- Does not have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years
- Results in the determination by the wastewater treatment provider which serves or may serve the project that it does not have adequate capacity to serve the projected demand in addition to the provider's existing commitments
- Generates solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals
- Does not comply with federal, state, and local management and reduction statutes and regulations related to solid waste

5.19.3.2 Additional CEQA Impact Question

The CPUC has identified an additional CEQA significance criterion. According to this additional CEQA significance criterion, a project causes a potentially significant impact if it would:

- Increase the rate of corrosion of adjacent utility lines as a result of alternating current impacts?

5.19.4 Impact Analysis

5.19.4.1 Impact Analysis

5.19.4.1.1 Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

5.19.4.1.1.1 Construction

No Impact. The EPL Project would not require or result in the relocation or construction of new or expanded water or wastewater treatment facilities. Only small volumes of domestic wastewater would be generated and disposed of at a wastewater treatment facility, and the small volume of potable water required during construction would be obtained from existing sources.

The EPL Project would not require or result in the relocation or construction of new or expanded storm water drainage facilities. Storm water drainage facilities are not found along much of the EPL Project alignment, and the EPL Project does not include the development of large-scale impermeable surfaces that would increase the amount of storm water discharge from the site that would require construction of new storm water drainage facilities or expansion of the few existing facilities.

The EPL Project would not require or result in the relocation or construction of new or expanded electric power, natural gas, or telecommunications facilities. In areas where the EPL Project alignment parallels or crosses such facilities, new structures installed under the EPL Project would be installed in the existing alignment, and therefore would not require the relocation of existing electric power, natural gas, or telecommunications facilities. Therefore, no impacts would occur under this criterion.

5.19.4.1.1.2 Operations

No Impact. As presented in Chapter 3, SCE is currently performing O&M activities, including inspections, along the transmission lines included under the EPL Project. No material changes in O&M activities are anticipated with implementation of the EPL Project, therefore no new impacts would be realized under this criterion during operations and maintenance.

5.19.4.1.2 Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?

5.19.4.1.2.1 Construction

No Impact. There are no reasonably foreseeable future developments associated with the EPL Project, and no new long-term permanent water supply is needed for the EPL Project.

Water would be used during construction of the EPL Project to control dust on access roads and at work areas, in the construction of concrete foundations, and for washing equipment, among other uses. It is conservatively estimated that on the order of 450 acre-feet of water would be required during the construction period; this water would be procured through commercial transaction(s) with purveyors. Review of the Mojave Water Agency 2020 Urban Water Management Plan that covers a portion of the EPL Project alignment suggests that supply exceeds demand across the Plan area. None of the groundwater basins underlying the EPL Project alignment are identified as being in a critical condition of overdraft (DWR 2016). The review identified that excess groundwater pumping capacity is available, that normal-year water supply surpluses are present, and that groundwater banking is and has been used to

ensure supply during dry and multiple-dry years to make up for reductions in imported surface water volumes.

Given the short construction schedule during which water would be required, and that supplies exceed current local demand along the EPL Project alignment, the EPL Project would have sufficient water supplies available, and therefore no impacts would occur under this criterion.

5.19.4.1.2.2 Operations

No Impact. As presented in Chapter 3, SCE is currently performing O&M activities, including inspections, along the transmission lines included under the EPL Project. No material changes in O&M activities are anticipated with implementation of the EPL Project, and therefore no new impacts would be realized under this criterion during operations and maintenance.

5.19.4.1.3 Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

5.19.4.1.3.1 Construction

No Impact. As previously discussed, construction of the EPL Project would not generate significant amounts of wastewater. Portable toilets would be provided for on-site use by construction workers and would be maintained by a licensed sanitation contractor. Minimal wastewater would be generated, and construction of the EPL Project would not result in discharge of concentrated wastewater or large volumes of wastewater to a wastewater treatment provider. SCE would work with SCE-approved vendors and subcontractors for the handling of wastewater. The VVWRA treatment plant has approximately 7 million gallons per day of excess capacity; thus, because of the excess capacity available at this existing wastewater treatment plant, and because of the small volumes of wastewater that would be transported for treatment, no wastewater treatment provider would be asked or would need to make a determination regarding adequate capacity, and therefore, no impact would occur under this criterion.

5.19.4.1.3.2 Operations

No Impact. As presented in Chapter 3, SCE is currently performing O&M activities, including inspections, along the transmission lines included under the EPL Project. No material changes in O&M activities are anticipated with implementation of the EPL Project, and therefore no new impacts would be realized under this criterion during operations and maintenance.

5.19.4.1.4 Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

5.19.4.1.4.1 Construction

No Impact. There are no State or local standards that establish numerical thresholds related to the generation of solid waste.

The landfill(s) at which the EPL Project's solid waste and excavated materials will be disposed are not known at this time. However, the Victorville Sanitary Landfill has approximately 81.5 million cubic yards of permitted capacity remaining. Much of the material generated during the EPL Project will be diverted from local landfill disposal through recycling of removed conductor and other materials. Because of the large volume of material that will be recycled and the large surplus capacity available at the Victorville

Sanitary Landfill among other disposal facilities, the EPL Project would not generate solid waste in excess of the capacity of local infrastructure.

Assembly Bill 341 established a policy goal for the state that not less than 75 percent of solid waste generated be source reduced, recycled, or composted by the year 2020; the Bill also notes that this goal shall remain at 50 percent for local jurisdictions.

The very large majority of the material removed as part of the EPL Project—including the metallic conductor and associated components—will be recycled.

Landfills in proximity to the EPL Project alignment have in excess of 79 million cubic yards of permitted capacity remaining; the very large majority of the material generated under the EPL Project would be diverted from landfill disposal through recycling of metallic materials. The mass of materials likely to be included in the EPL Project waste stream represents a very small percentage of waste generated and disposed annually in San Bernardino County. Therefore, no impacts would occur under this criterion.

5.19.4.1.4.2 Operations

No Impact. As presented in Chapter 3, SCE is currently performing O&M activities, including inspections, along the transmission lines included under the EPL Project. No material changes in O&M activities are anticipated with implementation of the EPL Project, and therefore no impacts would be realized under this criterion during operations and maintenance.

5.19.4.1.5 Would the project comply with federal, state, and local statutes and regulations related to solid waste?

5.19.4.1.5.1 Construction

No Impact. As previously discussed, solid waste produced during construction would be disposed of at one or more licensed landfill(s). Management and disposal of solid waste would comply with all applicable federal, state, and local statutes and regulations. Thus, the EPL Project would not violate any solid waste statutes or regulations. Therefore, no impact would occur during construction of the EPL Project.

5.19.4.1.5.2 Operations

No Impact. As presented in Chapter 3, SCE is currently performing O&M activities, including inspections, along the transmission lines included under the EPL Project. No material changes in O&M activities are anticipated with implementation of the EPL Project, and therefore no new impacts would be realized under this criterion during operations and maintenance.

5.19.4.1.6 Would the project increase the rate of corrosion of adjacent utility lines as a result of alternating current impacts?

5.19.4.1.6.1 Construction

No Impact. No aspect of construction would increase the rate of corrosion of adjacent utility lines as a result of alternating current impacts.

5.19.4.1.6.2 Operations

No Impact. Collocated pipelines sharing, paralleling, or crossing high voltage power line ROWs may be subject to electrical interference from electrostatic coupling, electromagnetic inductive, and conductive effects. If the interference effects are high enough, they may compromise the integrity of the pipeline. The severity of interference effects is a function of the electric lines' operating amperage, the separation

distance between the electric line and pipeline, the resistivity of the soil, the length of collocation, and the angle at which the electric line and pipeline cross each other.

The transmission lines included under the EPL Project are operated at 725 amperes; the transmission lines included under the EPL Project will, following construction, be operated at the same amperage as they are presently operated. No inter-set structure to be installed under the EPL Project will be located nearer to a pipeline than an existing structure is, and no inter-set structure will be installed any nearer than 3,000 feet from a pipeline. Thus, the existing separation distances, collocated lengths, and crossing angles as are currently present will not be changed. Therefore, the operation of the infrastructure installed under the EPL Project would not increase the rate of corrosion of adjacent utility lines as a result of alternating current impacts, and no impacts would be realized under this criterion.

5.19.4.2 Utility Relocation

Conflicts with existing utility infrastructure that is not included under the EPL Project as addressed in Chapter 3 have not been identified, and thus the EPL Project will not require the relocation of any utilities except those addressed in Chapter 3.

5.19.4.3 Waste

The types of waste that would be generated under the EPL Project are addressed in Section 3.5.14. The approximate volumes and masses of waste that would be generated under the EPL Project are addressed in Section 3.5.14; this Section also addresses the amount of waste materials that would be disposed of and recycled.

5.19.4.4 Water Supply

5.19.4.4.1 Estimate of the amount of water required for project construction and operation, and potential water supply source(s).

The estimated amount of water required for EPL Project construction is provided above in Section 5.19.4.1.2. No additional amounts of water above those currently consumed during extant O&M activities would be required during the O&M of the transmission lines included under the EPL Project.

The potential water supply sources include the water purveyors and utilities listed above in Section 5.19.1.4 as well as private providers of water. In addition, wastewater treatment plants may be a source of water supply (i.e., a source of reclaimed or recycled water) for the EPL Project. The water supply sources will be identified by SCE's construction contractor during the pre-construction planning process.

5.19.4.4.2 Evaluation of the ability of the water supplier to meet the project demand under a multiple dry year scenario.

Because individual water suppliers are not identified at this time, SCE has examined the Mojave Water Agency 2020 Urban Water Management Plan to assess the ability of water suppliers operating in the areas covered by this Plan to meet the EPL Project's demands under a multiple dry year scenario. Most of Segments 1 and 2 are located within the Plan area; the remainder of Segments 1 and 2 and the entireties of Segments 3 and 4 are located in an area not covered by a Plan.

The Plan documents the results of a five-year Drought Risk Assessment (DRA). The DRA indicates that MWA has surplus water assets available in the first and fifth years of any projected five-year dry period out to the year 2065, and that the MWA would have balanced supply and demand in the second, third, and

fourth years of any projected five-year dry period. Therefore, water suppliers would have the ability to meet the EPL Project's demand under a multiple dry year scenario.

5.19.4.4.3 Analysis of the EPL Project meeting the criteria for consideration as a project subject to Water Supply Assessment Requirements under Water Code Section 10912.

The EPL Project does not meet the criteria for consideration as a project subject to Water Supply Assessment Requirements under Water Code Section 10912. Section 10912 states:

> For the purposes of this part, the following terms have the following meanings:
>
> (a) "Project" means any of the following:
>
> (1) A proposed residential development of more than 500 dwelling units.
>
> (2) A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space.
>
> (3) A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space.
>
> (4) A proposed hotel or motel, or both, having more than 500 rooms.
>
> (5) A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area.
>
> (6) A mixed-use project that includes one or more of the projects specified in this subdivision.
>
> (7) A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project

No SCE project meets the definition of a "Project" per (1) through (6).

Regarding (7): Per the CDWR's *Guidebook for Implementation of Senate Bill 610 and Senate Bill 221 of 2001 to assist water suppliers, cities, and counties in integrating water and land use planning*

> …it is generally acknowledged that one acre-foot of water can serve two to three households on an annual basis; therefore, one dwelling unit typically consumes .3 to .5 acre-feet of water per year, depending upon several factors, including the regional climate.

Water Code Section 10910(c)(3) states in relevant part:

> [the] water supply assessment for the project shall include a discussion with regard to whether the public water system's total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with the proposed project…

By this measure, a 500 dwelling unit project would demand up to 250 acre-feet of water per year; over a 20-year project period, a 500 dwelling unit project would demand up to 5,000 acre-feet. As presented above, it is estimated that the EPL Project would demand approximately 450 acre-feet of water over the construction period, and would present no new water demand during operations. Therefore, the EPL Project would not demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project, and thus the EPL Project does not meet the criteria for consideration as a

project subject to Water Supply Assessment Requirements under Water Code Section 10912. Accordingly, no Water Supply Assessment has been developed for the EPL Project.

5.19.4.5 Cathodic Protection

Collocated pipelines sharing, paralleling, or crossing high voltage power line ROWs may be subject to electrical interference from electrostatic coupling, electromagnetic inductive, and conductive effects. If the interference effects are high enough, they may compromise the integrity of the pipeline. The severity of interference effects is a function of, among other factors, the electric lines' operating amperage; the separation distance between the electric line and pipeline and the length of collocation; and the angle at which the electric line and pipeline cross each other.

5.19.4.5.1 Operating Amperage

The transmission lines included under the EPL Project are and will be operated at 725 amperes; this indicates a 'high' relative severity of high-voltage alternating current interference.

5.19.4.5.2 Separation Distance and Length of Collocation

No portion of the EPL Project alignment is collocated with a pipeline.

5.19.4.5.3 Crossings

The EPL Project alignment crosses, at 8 locations, liquid and gaseous hydrocarbon transmission pipelines. Of these 8 crossings, 5 are at angles with a relative severity ranking of low; 2 are at angles with a relative severity ranking of medium; and 1 is at an angle with a relative severity ranking of high.

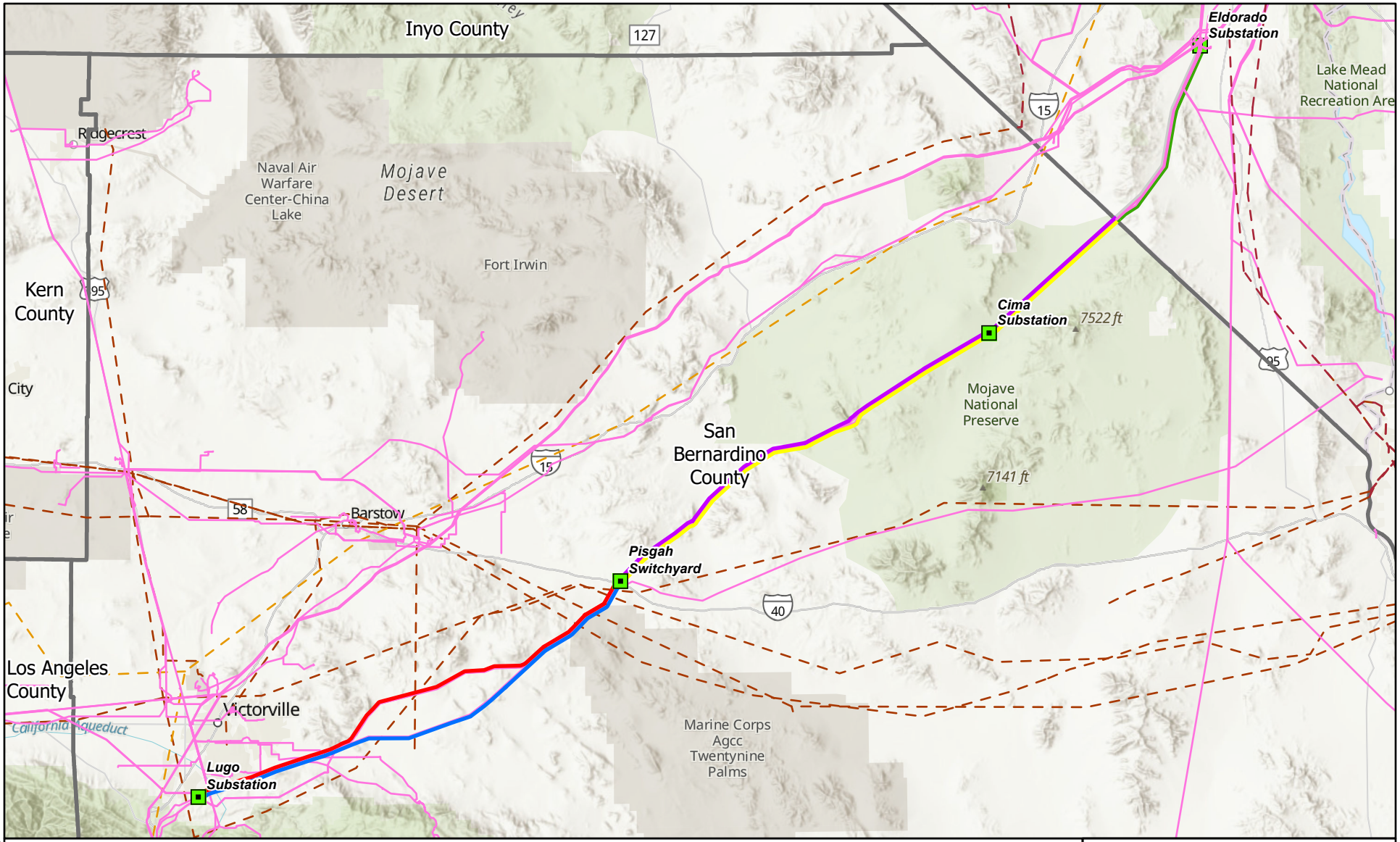
5.19.4.5.4 Analysis

The operational characteristics of the transmission lines would not be modified under the EPL Project; therefore, any potential corrosion risk would not be increased by the EPL Project, and thus no cathodic protection measures would be implemented.

5.19.5 CPUC Draft Environmental Measures

SCE will, as the direction of the CPUC, implement the following CPUC-identified Draft Environmental Measure during construction of the EPL Project:

> **Notify Utilities with Facilities Above and Below Ground.** The Applicant shall notify all utility companies with utilities located within or crossing the project ROW to locate and mark existing underground utilities along the entire length of the project at least 14 days prior to construction. No subsurface work shall be conducted that would conflict with (i.e., directly impact or compromise the integrity of) a buried utility. In the event of a conflict, areas of subsurface excavation or pole installation shall be realigned vertically and/or horizontally, as appropriate, to avoid other utilities and provide adequate operational and safety buffering. In instances where separation between third-party utilities and underground excavations is less than 5 feet, the Applicant shall submit the intended construction methodology to the owner of the third-party utility for review and approval at least 30 days prior to construction. Construction methods shall be adjusted as necessary to assure that the integrity of existing utility lines is not compromised.


Inyo County
127
Eldorado Substation
Lake Mead National Recreation Are
15
Ridgecrest
Naval Air Warfare Center-China Lake
Mojave Desert
Fort Irwin
Kern County
95
Cima Substation
7522 ft
City
Mojave National Preserve
San Bernardino County
7141 ft
58
Barstow
Pisgah Switchyard
40
Los Angeles County
Victorville
California Aqueduct
Marine Corps Agcc Twentynine Palms
Lugo Substation
Legend
Substations
Segment 1
Segment 2
Segment 3
Segment 4
Segment 5
Segment 6
County Boundary
Transmission Line
Petroleum Pipelines
Natural Gas Pipeline
NOTES:
Sources: https://services1.arcgis.com/VAI453sU9tG9rSmh/arcgis/rest/services/UA_Local342_California_Pipelines_Features/FeatureServer;
https://services3.arcgis.com/bWPjFyq029ChCGur/arcgis/rest/services/Transmission_Line/FeatureServer
0
15
30
Miles
N
ELDORADO-PISGAH-LUGO 220 kV PROJECT
UNCONNECTED UTILITIES AND OTHER INFRASTRUCTURE
SOUTHERN CALIFORNIA EDISON
An EDISON INTERNATIONAL Company
ARCADIS
FIGURE
5.19-1
Folder: T:_ENV\SCE\SCE_TLLR\ArcGIS_Pro\

5.20 Wildfire

This Section of the PEA describes the wildfire-related setting in the area of the EPL Project, as well as the potential impacts that may result during construction and operation of the EPL Project.

5.20.1 Environmental Setting

Emergency response plans and evacuation plans are addressed in Section 5.9, Hazards and Hazardous Materials. Section 5.10, Hydrology and Water Quality, addresses topics related to flooding, runoff, and drainage.

5.20.1.1 High Fire Risk Areas and State Responsibility Areas, California

Within California, FHSZs are designated by CAL FIRE. The majority of the EPL Project alignment is located in areas within a CAL FIRE moderate fire hazard severity zone; portions of Segments 1 and 2 are located within the CAL FIRE high or unzoned fire hazard severity zones. Tabular information on the miles of EPL Project alignment located within these zones is presented in Table 5.20-1 and shown graphically on Figure 5.20-1. Wildland-urban interface data along the EPL Project alignment are presented in Figure 5.20-2.

Table 5.20-1. Miles of EPL Project Alignment within Designated Fire Hazard Severity Zones

Project Segment	Fire Hazard Severity Zone	Distance (miles)	LRA* (miles)	SRA* (miles)	FRA* (miles)	CPUC FTA* (miles)
1	High	8.14	22.65	10.58	31.95	Elevated; ~1.4
	Moderate	55.02				
	Unzoned	2.27				
2	High	7.99	22.02	10.88	31.55	Elevated; ~1.1
	Moderate	52.46				
	Unzoned	4.51				
3	Moderate	82.44	7.92	0.00	74.52	None
4	Moderate	82.66	7.92	0.00	74.74	None

*Abbreviations:
FRA: Federal Responsibility Area
LRA: Local Responsibility Area
FTA: Fire Threat Area
SRA: State Responsibility Area

CPUC Fire-Threat Map data are presented in Figure 5.20-3; as seen in this figure, the western-most portions of Segment 1 and Segment 2 are located in CPUC-designated Fire Threat Area Tier 2 – Elevated areas. No other portion of the EPL Project is located in a CPUC-designated Fire Threat Area.

SCE has not independently identified any high FHSZ areas along the EPL Project alignment.

Local Responsibility Areas, State Responsibility Areas, and Federal Responsibility areas are found across the EPL Project alignment; these are shown in Figure 5.20-4.

5.20.1.2 Fire Hazard, Nevada

Segments 5 and 6 in Nevada are located on lands identified as non-burnable, and on lands with wildfire hazard potential generally ranging from very low to moderate, with some short sections located on lands with a high wildfire hazard potential (Dillon and Gilbertson-Kay 2020).

5.20.1.3 Fire Occurrence

Fires that have overlapped the EPL Project alignment are shown in Figure 5.20-5; details of these fires are presented in Table 5.20-2.

Table 5.20-2. Wildfires Along the EPL Project Alignment

Name	Year	Location	Ignition Source/Location	Amount of Land Burned (Acres)
Dome	2020	Segments 3 and 4	Lightning / Deer Springs	44,211
Hesperia	1970	Segments 1 and 2	Unknown / Unknown	1,432
Kiowa	1980	Segments 1 and 2	Unknown / Unknown	2,050
Santa Fe #13	1958	Segments 1 and 2	Unknown / Unknown	2,809
Willow	1999	Segments 1 and 2	Unknown / Unknown	63,508

Source: NPS 2020

5.20.1.4 Fire Risk

The EPL Project proposes to install new inter-set structures, modify the hardware on existing structures, and to reconductor portions of the existing transmission lines in their current alignment. Because the transmission lines proposed to be rebuilt are existing, they are an inherent component of the baseline fire risk in the area, and their rebuilding with modern infrastructure installed to current CPUC Rules will not negatively alter the baseline fire risk in the area.

Scott and Burgan Fire Behavior Fuel Model data for the area along the EPL Project alignment are presented in Figure 5.20-6. Values of wind direction and speed, relative humidity, temperature, and other parameters for the Victorville South (KVCV) weather station dating back to the end of 2004 are presented in Appendix L.

Table 5.20-3 lists those vegetation types included in the USDA Fire Effects Information System that are found along the EPL Project alignment; these are shown in Figure 5.20-7: USDA Fire Effects Information System Vegetation Types.

Table 5.20-3. USDA Fire Effects Information System Vegetation Types

Ba Open Water
Bau Developed-High Intensity
Bau Developed-Low Intensity
Bau Developed-Medium Intensity
Bau Developed-Roads
Da Close Grown Crop
Dab Fallow/Idle Cropland
Dab Pasture and Hayland
Dgr Developed Ruderal Grassland
Dgr Developed Ruderal Herbaceous Wetland
Dgr Urban Herbaceous
Dsh Developed Ruderal Shrubland
Dsh Urban Shrubland
Dtc Developed Ruderal Evergreen Forest
Dtc Urban Evergreen Forest
Dtd Developed Ruderal Deciduous Forested Wetland
Dtd Urban Deciduous Forest

Table 5.20-3. USDA Fire Effects Information System Vegetation Types

Dtm Urban Mixed DeciduousEvergreen Forest
He California Central Valley and Southern Coastal Grassland
He Inter-Mountain Basins Semi-Desert Grassland
Sh California Mesic Chaparral
Sh California Ruderal Grassland Meadow & Scrub
Sh Inter-Mountain Basins Big Sagebrush Shrubland
Sh Mojave Mid-Elevation Mixed Desert Scrub
Sh North American Warm Desert Ruderal & Planted Scrub & Grassland
Sh Sonora-Mojave Creosotebush-White Bursage Desert Scrub
Sh Sonora-Mojave Mixed Salt Desert Scrub
Sh Sonora-Mojave SemiDesert Chaparral
Sh Southern California Coastal Scrub
Sh Southern California DryMesic Chaparral
Sh Western North American Ruderal Wet Shrubland Meadow & Marsh
Sps Mediterranean California Sparsely Vegetated Systems
Sps North American Warm Desert Sparsely Vegetated Systems
Tr Central and Southern California Mixed Evergreen Woodland
Tr Great Basin Pinyon-Juniper Woodland
Tr Interior West Ruderal Riparian Forest & Scrub
Tr North American Warm Desert Riparian Systems
Tr Southern California Oak Woodland and Savanna

5.20.1.5 Values at Risk

Communities near the EPL Project alignment, which include structures and other improvements (including utility-owned infrastructure) at risk from wildfire, are identified in Section 5.14 and are shown on Figure 5.14-1; sensitive receptors, which are another proxy for structures, are shown in Figure 5.13-1. The vulnerability of these structures and improvements is typical for the region and is dependent on the age of the structures, improvements, and their physical siting. Habitat along the EPL Project alignment is at risk from wildfire.

5.20.1.6 Evacuation Routes

The EPL Project alignment crosses several evacuation routes in Segment 1 and Segment 2 including SR-18, SR-247, and I-40. No other identified evacuation routes are crossed by the EPL Project alignment.

No public roadways crossed by the EPL Project alignment and in the immediate vicinity of a location where work under the EPL Project would occur lack a secondary point of access or exit.

5.20.2 Regulatory Setting

Federal, State, and local regulations were reviewed for applicability to the EPL Project.

5.20.2.1 Regulatory Setting

5.20.2.1.1 Federal

Please see Sections 5.9.2.1.1 and 5.10.2.1.1

5.20.2.1.2 State

Senate Bill 901, enacted in 2018, adopted new provisions of Public Utilities Code Section 8386 requiring all electric utilities to prepare, submit, and implement annual wildfire mitigation plans that describe the utilities' plans to construct, operate, and maintain their electrical lines and equipment in a manner that will help minimize the risk of catastrophic wildfires associated with those electrical lines and equipment.

5.20.2.1.3 Local

Please see Sections 5.9.2.1.3 and 5.10.2.1.3.

5.20.2.2 CPUC Standards

In October 2007, devastating wildfires driven by strong Santa Ana winds burned hundreds of square miles in Southern California. Several of the worst wildfires were reportedly ignited by overhead utility power lines and aerial communication facilities in close proximity to power lines. In response to these wildfires, the CPUC initiated Rulemaking (R.) 08-11-005 to consider and adopt regulations to protect the public from potential fire hazards associated with overhead powerline facilities and nearby aerial communication facilities.

Beginning in 2009, the CPUC issued several decisions in R.08-11-005 that together adopted dozens of new fire-safety regulations. Most of the adopted fire-safety regulations consisted of new or revised rules in GO 95. Several of the adopted fire-safety regulations apply only to areas, referred to as "high fire-threat areas," where there is an elevated risk for power line fires igniting and spreading rapidly. These high fire-threat areas are designated by several maps that were adopted on an interim basis. Each of the interim maps covers a different part of the State and uses its own methodology for identifying high fire-threat areas, presenting consistency and potential enforcement issues. To address these issues, the CPUC also commenced the development of a single statewide fire-threat map to designate areas where (1) there is an elevated risk for destructive power line fires, and (2) where stricter fire-safety regulations should apply.

In May 2015, the CPUC closed R.08-11-005 and initiated successor rulemaking R.15-05-006 to complete the outstanding tasks in R.08-11-005. The general scope of R.15-05-006 was to address the following matters carried over from the scope of R.08-11-005: (1) develop and adopt a statewide fire-threat map that delineates the boundaries of a new High Fire-Threat District (HFTD) where the previously adopted regulations will apply, (2) determine the need for additional fire-safety regulations in the HFTD, and (3) revise GO 95 to include a definition and maps of the HFTD, as well as any new fire-safety regulations. The scope and schedule for R.15-05-006 was divided into two parallel tracks. One track focused on the development and adoption of a statewide fire-threat map. The second track focused on the identification, evaluation, and adoption of fire-safety regulations in the HFTD.

On December 21, 2017, the CPUC issued Decision (D.) 17-12-024 adopting regulations to enhance fire-safety in the HFTD, effectively completing the second track of R.15-05-006 described above. On January 19, 2018 the CPUC adopted, via Safety and Enforcement Division's (SED) disposition of a Tier 1 Advice Letter, the final CPUC Fire-Threat Map. The adopted CPUC Fire-Threat Map, together with the map of Tier 1 High Hazard Zones (HHZs) on the USFS- California Department of Forestry and Fire Protection's (CAL FIRE) joint map of tree mortality HHZs, comprise the HFTD Map where stricter fire-safety regulations apply.

5.20.2.2.1 Inspection and Maintenance Standards

D. 96-11-021 and D.97-03-070 establish inspection cycles and record-keeping requirements for utility distribution equipment, which are contained in GO 165. In general, utilities must patrol (walk, drive, or

fly by) their systems once a year (in urban areas) or once every two years (in rural areas). Utilities must conduct detailed inspections every 3-5 years, depending on the type of equipment. For detailed inspections, utilities' records must specify the condition of inspected equipment, any problems found, and a scheduled date for corrective action. The utility must submit an annual report summarizing inspections made, equipment condition observed, and repairs made. Utilities are required to make intrusive inspections of power poles; no pole should go over 25 years before its first intrusive inspection, and once passed, every 20 years thereafter. Currently GO 165 is being studied for revisions to optimize the Commission's ability to identify areas on noncompliance with its safety standards GO 95 Overhead and GO 128 Underground and its inspection, maintenance and repair standards GO 165.

5.20.2.2.2 Tree Trimming Standards

D. 97-01-044 of Investigation 94-06-012 establishes standards for trimming trees near power lines, issued as a revision to Rule 35 of GO 95-A. For lines at voltages higher than 750 volts, in general, trees must be trimmed so as to provide no less than 18 inches of clearance from lines under normal annual weather variations. When trimmed, where practicable, trees must be 4 to 15 feet from power lines over 2,400 volts (clearances vary with voltage). Detailed rules are contained in Appendix A of the decision.

5.20.3 Impact Questions

5.20.3.1 Impact Questions

The significance criteria for assessing the impacts to public services are derived from the CEQA Environmental Checklist. According to the CEQA Checklist, a project would cause a potentially significant impact if, located in or near state responsibility areas or lands classified as very high fire hazard severity zones, the EPL Project would:

- Substantially impair an adopted emergency response plan or emergency evacuation plan?
- Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?
- Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?
- Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

5.20.3.2 Additional CEQA Impact Questions

There are no CPUC-identified additional CEQA impact questions.

5.20.4 Impact Analysis

5.20.4.1 Impact Analysis

5.20.4.1.1 Would the project substantially impair an adopted emergency response plan or emergency evacuation plan?

5.20.4.1.1.1 Construction

Less than Significant Impact. The EPL Project alignment crosses a number of evacuation routes, including SR-18, SR-247, and I-40; no other identified evacuation routes are crossed by the EPL Project alignment.

As discussed in Section 5.17, the EPL Project would not be expected to significantly impact traffic circulation or increase demands on existing emergency response services during temporary construction activities and would not significantly impact emergency access in the area or increase the demand for existing emergency response services. Although it is not anticipated that construction activities would result in the blockage of any roadways (including those identified as evacuation routes) that could be used in the case of an emergency. in the event that any construction-related activity may result in such a blockage or closure, SCE would implement the traffic control measures included in the Project Description and as described in Section 3.5.10. Therefore, the EPL Project would not substantially impair an adopted emergency response plan or emergency evacuation plan and impacts would be less than significant.

5.20.4.1.1.2 Operations

No Impact. As presented in Chapter 3, SCE is currently performing O&M activities, including inspections, along the transmission lines that are included under the EPL Project. No material changes in O&M activities are anticipated with implementation of the EPL Project, and therefore no impacts would be realized under this criterion during operations and maintenance.

5.20.4.1.2 Would the project, due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

5.20.4.1.2.1 Construction

No Impact. No components of the EPL Project are designed for human occupancy; therefore, no impacts would occur under this criterion.

5.20.4.1.2.2 Operations

No Impact. No components of the EPL Project are designed for human occupancy; therefore, no impacts would be realized under this criterion.

5.20.4.1.3 Would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

5.20.4.1.3.1 Construction

No Impact. The EPL Project does not include or require the installation or maintenance of associated infrastructure such as roads, fuel breaks, emergency water sources, non-Project power lines, or other utilities; the entirety of the EPL Project is described in Chapter 3. Therefore, because no such associated infrastructure would be installed under the EPL Project, no impacts would occur under this criterion.

Further, as described in Section 5.9.4.1.7, no portion of the EPL Project alignment is located in a very high fire hazard severity zone. Portions of the EPL Project alignment are located in areas designated as moderate and high fire hazard severity zones. The western portion of Segment 1 and Segment 2 are located in CPUC-designated Fire Threat Area Tier 2 – Elevated areas. No other portion of the EPL Project is located in a CPUC-designated Fire Threat Area.

High heat or sparks from vehicles or equipment have the potential to ignite dry vegetation and cause fires. However, EPL Project activities would generally be located within existing ROWs where vegetation would be cleared or trimmed. Vehicles and equipment would primarily use existing roads and would use

an overland travel method in temporary construction areas where and when such a method can be used safely. In addition, SCE has developed and would implement a Fire Prevention and Emergency Response Plan (Appendix G), would implement the standard fire prevention protocols identified in Section 3.5.15 during construction activities, and would comply with applicable laws and regulations.

In the event that the National Weather Service issues a Red Flag Warning during construction of the EPL Project, additional measures would be implemented to address smoking and fire rules, storage and parking areas, the use of gasoline-powered tools, the use of spark arresters on construction equipment, road closures, the use of a fire guard, fire suppression tools, fire suppression equipment, and training requirements. Construction areas would be grubbed/trimmed of vegetation and graded before the staging of equipment, and in such areas where overland travel may occur, dry vegetation would also be trimmed; such activities would minimize the potential for vehicles or equipment to start a fire.

Within California, SCE participates with CAL FIRE, the California Governor's OES, and various city and county fire agencies in the Red Flag Fire Prevention Program and complies with California PRC Sections 4292 and 4293 related to vegetation management in transmission line corridors. The portions of the EPL Project located within moderate or high fire hazard severity zones and within CPUC-designated Tier 2 – Elevated areas would generally be cleared of vegetation as necessary prior to the staging of equipment, minimizing the risk of construction vehicles starting a fire.

5.20.4.1.3.2 Operations

No Impact. No material changes in O&M activities are anticipated with implementation of the EPL Project. As presented in Chapter 3, the EPL Project entails in part removing existing electrical infrastructure (conductor, insulators, and associated hardware) and replacing that infrastructure with modern electrical infrastructure. SCE is currently performing O&M activities, including inspections, along the transmission lines included under the EPL Project alignment. As currently performed, SCE would continue to implement its standard fire prevention protocols during O&M activities, comply with applicable laws and regulations, implement additional measures in the event of a Red Flag Warning during construction, and participate with CAL FIRE and other city and county fire agencies in the Red Flag Fire Prevention Program (in compliance with PRC Section 4292 and 4293 relating to vegetation management in transmission line corridors).

Among the O&M activities that would continue after construction of the EPL Project would be on-going implementation of SCE's Wildfire Mitigation Plan and the updates to that Plan in areas designated by the CPUC as Fire Threat Area Tier 2 – Elevated. The Plan describes strategies, programs and activities that are in place, being implemented or are under development by SCE to proactively address and mitigate the threat of electrical infrastructure-associated ignitions that could lead to wildfires. Therefore, no impacts would be realized under this criterion during operations and maintenance.

5.20.4.1.4 Would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

5.20.4.1.4.1 Construction

Less than Significant Impact. As presented in Section 3.5.11, the EPL Project SWPPPs would include measures to control storm water runoff rates which would minimize the potential for significant alteration of drainage patterns that could result in downslope or downstream flooding. Further, rehabilitation of some portions of the existing access road network and construction of new spur roads would include design considerations to maintain or improve drainage patterns within the EPL Project alignment.

Therefore, through drainage design and SWPPP implementation, the EPL Project would not substantially alter the existing drainage pattern of the site or area, or increase the rate or amount of surface runoff in a manner which would result in downstream or downslope flooding.

As discussed in the Geology and Soils impact analyses in Section 5.7.4 and displayed in Figure 5.7-5, the parts of Segments 1 and 2 that run within, or near the base of, the San Bernardino, Ord, and Rodman mountains, and some portions of Segments 3 and 4 that have areas of steep slopes, have localized landslide hazards. These localized areas may be susceptible to post-fire slope instability. However, these areas are unpopulated, and thus would not expose people or structures to risk as a result of slope instability. The remaining portions of the EPL Project alignment are located in valley areas that would not be susceptible to post-fire slope instability. Therefore, impacts from post-fire slope instability would be less than significant.

5.20.4.1.4.2 Operations

No Impacts. As presented in Chapter 3, SCE is currently performing O&M activities, including inspections, along the transmission lines that are included under the EPL Project. No material changes in O&M activities are anticipated with implementation of the EPL Project, and therefore no impacts would be realized under this criterion during operations and maintenance.

5.20.4.2 Fire Behavior Modeling

The EPL Project does not include any new electrical lines; therefore, no fire behavior modeling has been performed.

5.20.4.3 Wildfire Management

During operation and maintenance of the transmission lines included under the EPL Project, SCE would implement its Wildfire Mitigation Plan (and successor plans, see Appendix Q) to manage wildfire risk in the area. SCE's Wildfire Mitigation Plan is available on the CPUC's Utility Wildfire Mitigation Plans website at https://www.cpuc.ca.gov/SB901/

5.20.5 CPUC Draft Environmental Measures

SCE will implement the following CPUC-identified Draft Environmental Measure during construction of the EPL Project:

5.20.5.1 Construction Fire Prevention Plan

A project-specific Construction Fire Prevention Plan for both construction and operation of the project shall be submitted for review prior to initiation of construction. A draft copy of the Plan shall be provided to the CPUC and state and local fire agencies at least 90 days before the start of any construction activities in areas designated as Very High or High Fire Hazard Severity Zones. Plan reviewers shall also include federal, state, or local agencies with jurisdiction over areas where the project is located. The final Plan shall be approved by the CPUC at least 30 days prior to the initiation of construction activities. The Plan shall be fully implemented throughout the construction period and include the following at a minimum:

- The purpose and applicability of the Plan
- Responsibilities and duties
- Preparedness training and drills
- Procedures for fire reporting, response, and prevention that include:

  - Identification of daily site-specific risk conditions
  - The tools and equipment needed on vehicles and to be on hand at sites
  - Reiteration of fire prevention and safety considerations during tailboard meetings
  - Daily monitoring of the red-flag warning system with appropriate restrictions on types and levels of permissible activity
  - Coordination procedures with federal and local fire officials
  - Crew training, including fire safety practices and restrictions
- Method(s) for verifying that all Plan protocols and requirements are being followed

A project Fire Marshal or similar qualified position shall be established to enforce all provisions of the Construction Fire Prevention Plan as well as perform other duties related to fire detection, prevention, and suppression for the project. Construction activities shall be monitored to ensure implementation and effectiveness of the Plan.

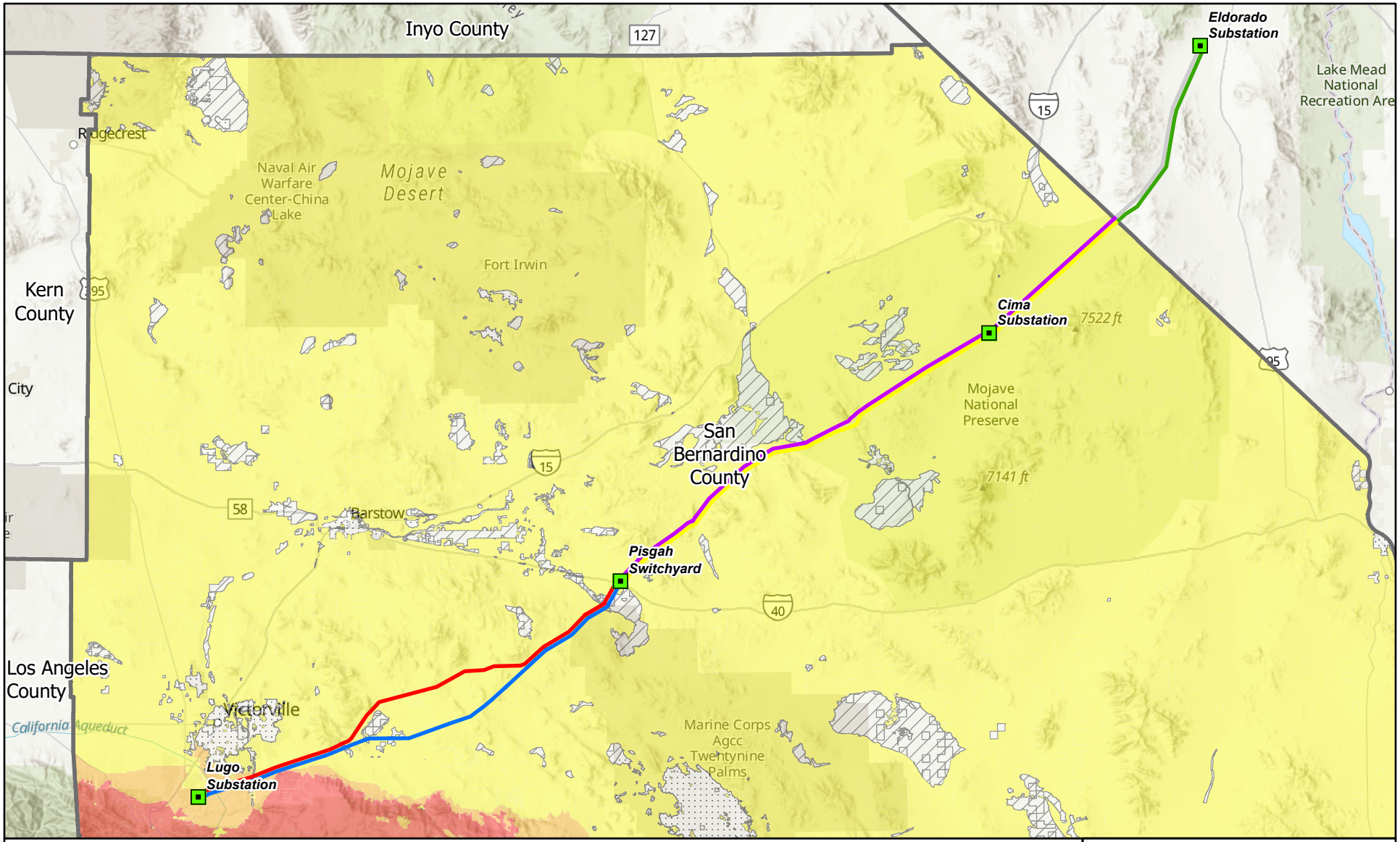
5.20.5.2 Fire Prevention Practices (Construction and Maintenance)

The Applicant shall implement ongoing fire patrols during the fire season as defined each year by local, state, and federal fire agencies. These dates vary from year to year, generally occurring from late spring through dry winter periods. During Red Flag Warning events, as issued daily by the National Weather Service, all construction/maintenance activities shall cease, with an exception for transmission line testing, repairs, unfinished work, or other specific activities which may be allowed if the facility/equipment poses a greater fire risk if left in its current state.

All construction/maintenance crews and inspectors shall be provided with radio and cellular telephone access that is operational in all work areas and access routes to allow for immediate reporting of fires. Communication pathways and equipment shall be tested and confirmed operational each day prior to initiating construction/maintenance activities at each work site. All fires shall be reported to the fire agencies with jurisdiction in the area immediately upon discovery of the ignition.

All construction/maintenance personnel shall be trained in fire-safe actions, initial attack firefighting, and fire reporting. All construction/maintenance personnel shall be trained and equipped to extinguish small fires in order to prevent them from growing into more serious threats. All construction/maintenance personnel shall carry at all times a laminated card and be provided a hard hat sticker that list pertinent telephone numbers for reporting fires and defining immediate steps to take if a fire starts. Information on laminated contact cards and hard hat stickers shall be updated and redistributed to all construction/maintenance personnel and outdated cards and hard hat stickers shall be destroyed prior to the initiation of construction/maintenance activities on the day the information change goes into effect.

Construction/maintenance personnel shall have fire suppression equipment on all construction vehicles. Construction/maintenance personnel shall be required to park vehicles away from dry vegetation. Water tanks and/or water trucks shall be sited or available at active project sites for fire protection during construction. The Applicant shall coordinate with applicable local fire departments prior to construction/maintenance activities to determine the appropriate amounts of fire equipment to be carried on vehicles and, should a fire occur, to coordinate fire suppression activities.



Legend

- Substations
- Segment 1
- Segment 2
- Segment 3
- Segment 4
- Segment 5
- Segment 6
- County Boundary

Calfire Fire Hazard Severity Zones

- Very High
- High
- Moderate
- Urban Unzoned
- Non-Wildland/Non-Urban

NOTES:
Sources: https://osfm.fire.ca.gov/divisions/community-wildfire-preparedness-and-mitigation/wildland-hazards-building-codes/fire-hazard-severity-zones-maps/

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Miles

ELDORADO-PISGAH-LUGO 220 kV PROJECT

FIRE HAZARD SEVERITY ZONES

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FIGURE 5.20-1

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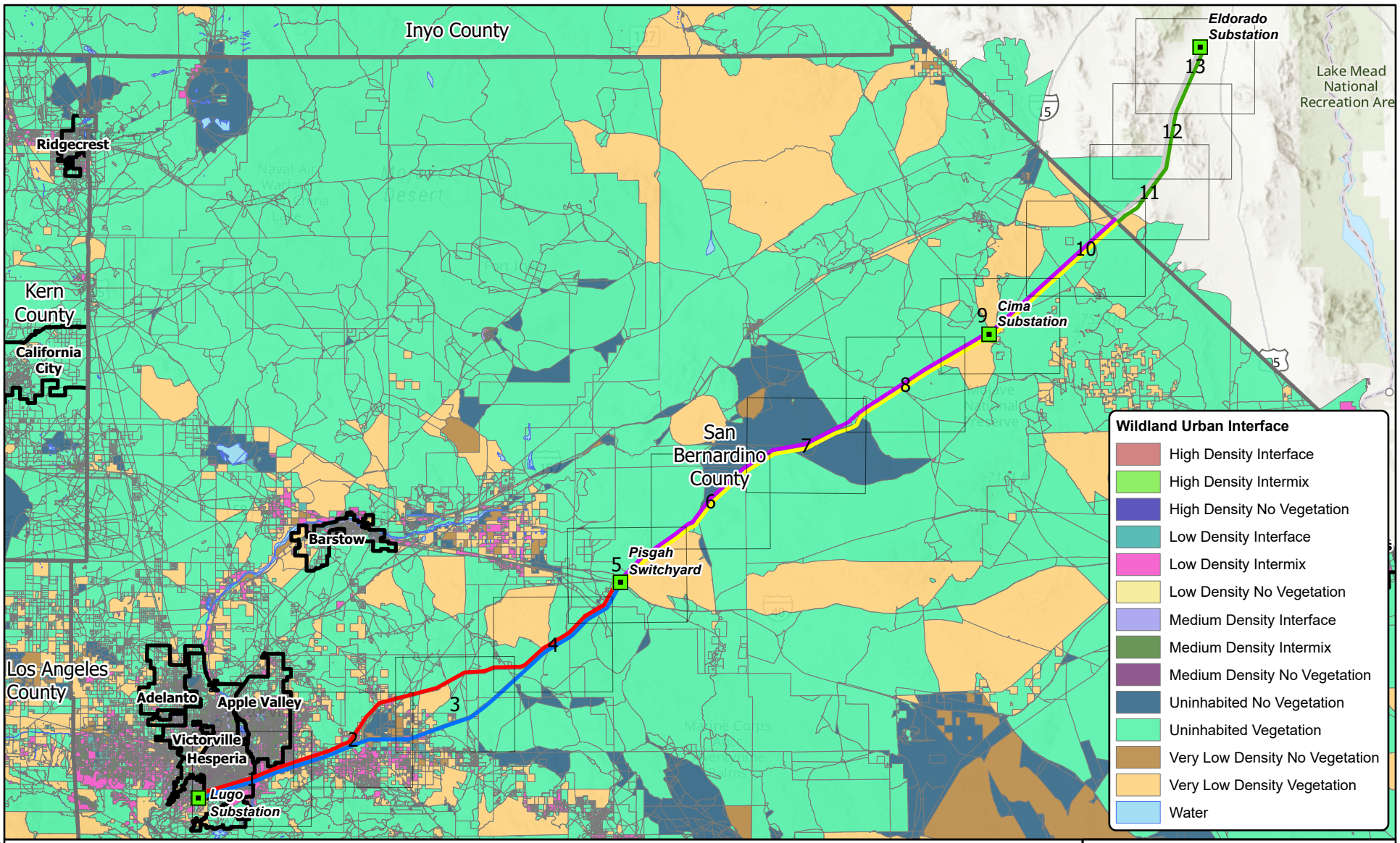

Legend

- Substations
- Segment 1
- Segment 2
- Segment 3
- Segment 4
- Segment 5
- Segment 6
- County Boundary
- City Boundary

NOTES:
Sources: https://www.fs.usda.gov/rds/archive/catalog/RDS-2015-0012-2

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WILDLAND URBAN INTERFACE

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FIGURE 5.20-2a

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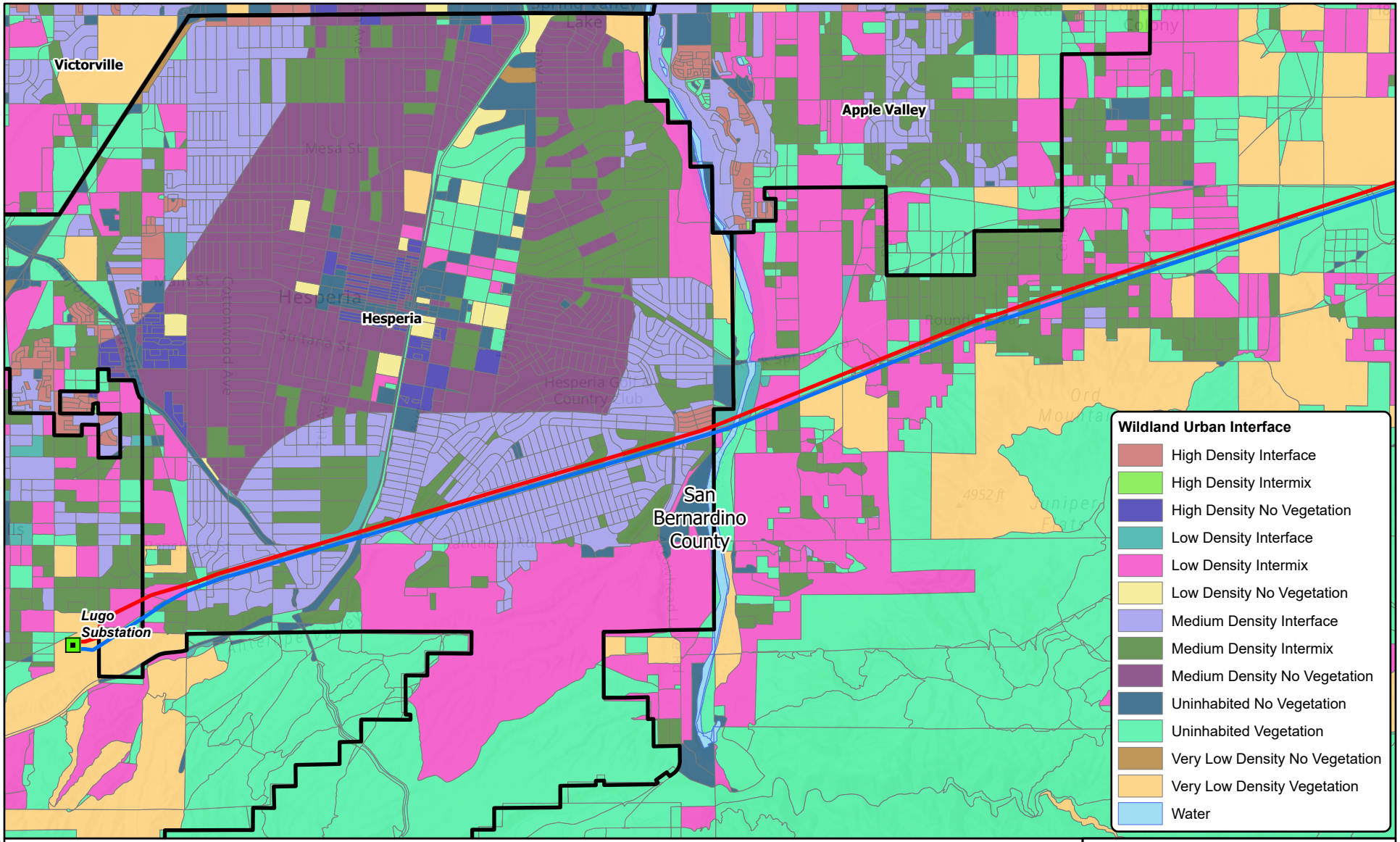

Legend

- Substations
- Segment 1
- Segment 2
- County Boundary
- City Boundary

NOTES:
Sources: https://sbcta-gis.sanbag.ca.gov/arcgis/rest/services/Sidewalk/MapServer/0

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ELDORADO-PISGAH-LUGO 220 kV PROJECT

WILDLAND URBAN INTERFACE

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
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FIGURE 5.20-2b

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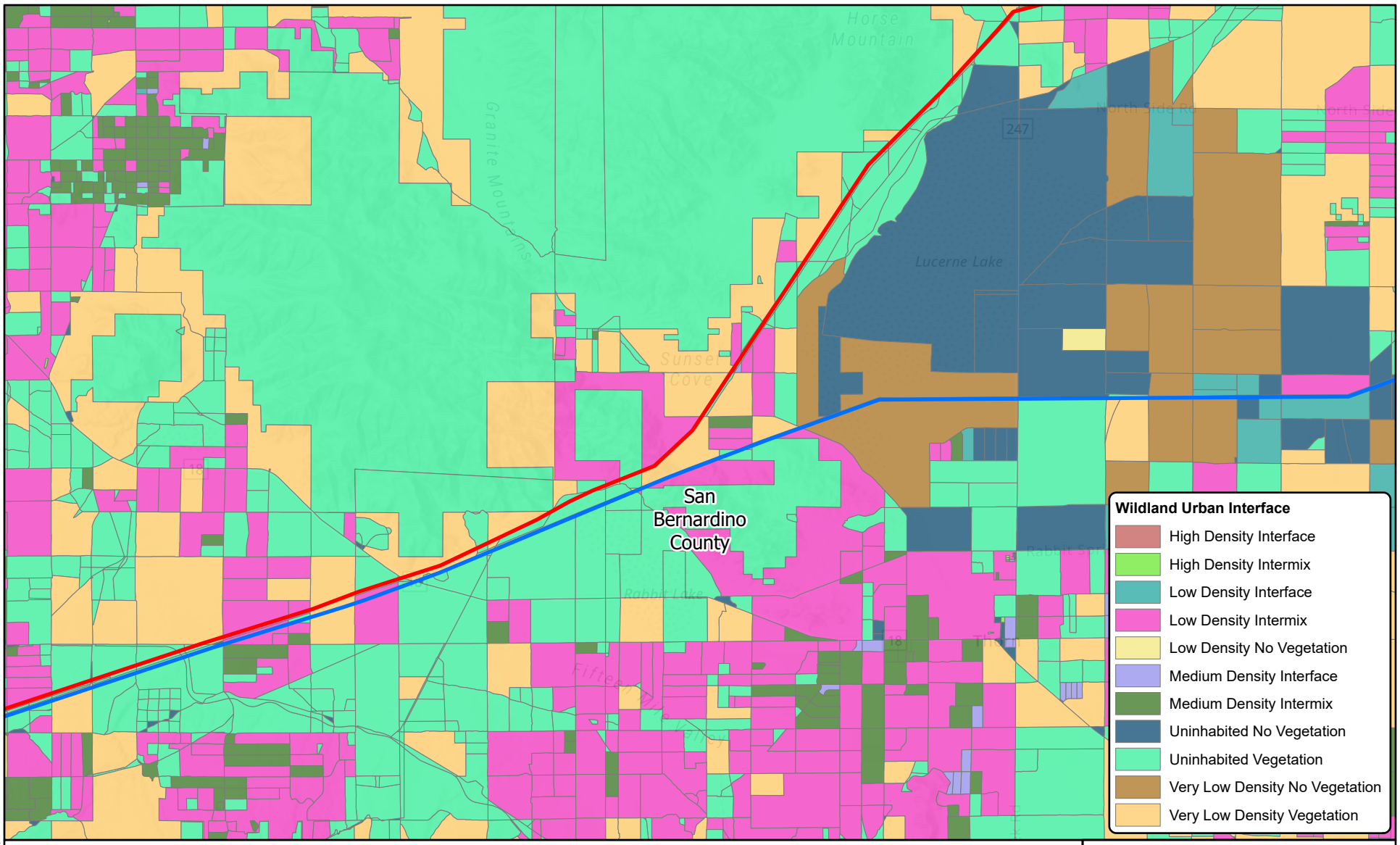

Legend

- Substations
- Segment 1
- Segment 2
- County Boundary
- City Boundary

NOTES:
Sources: https://sbcta-gis.sanbag.ca.gov/arcgis/rest/services/Sidewalk/MapServer/0

N

0 1 2
Miles

ELDORADO-PISGAH-LUGO 220 kV PROJECT

WILDLAND URBAN INTERFACE

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.20-2b

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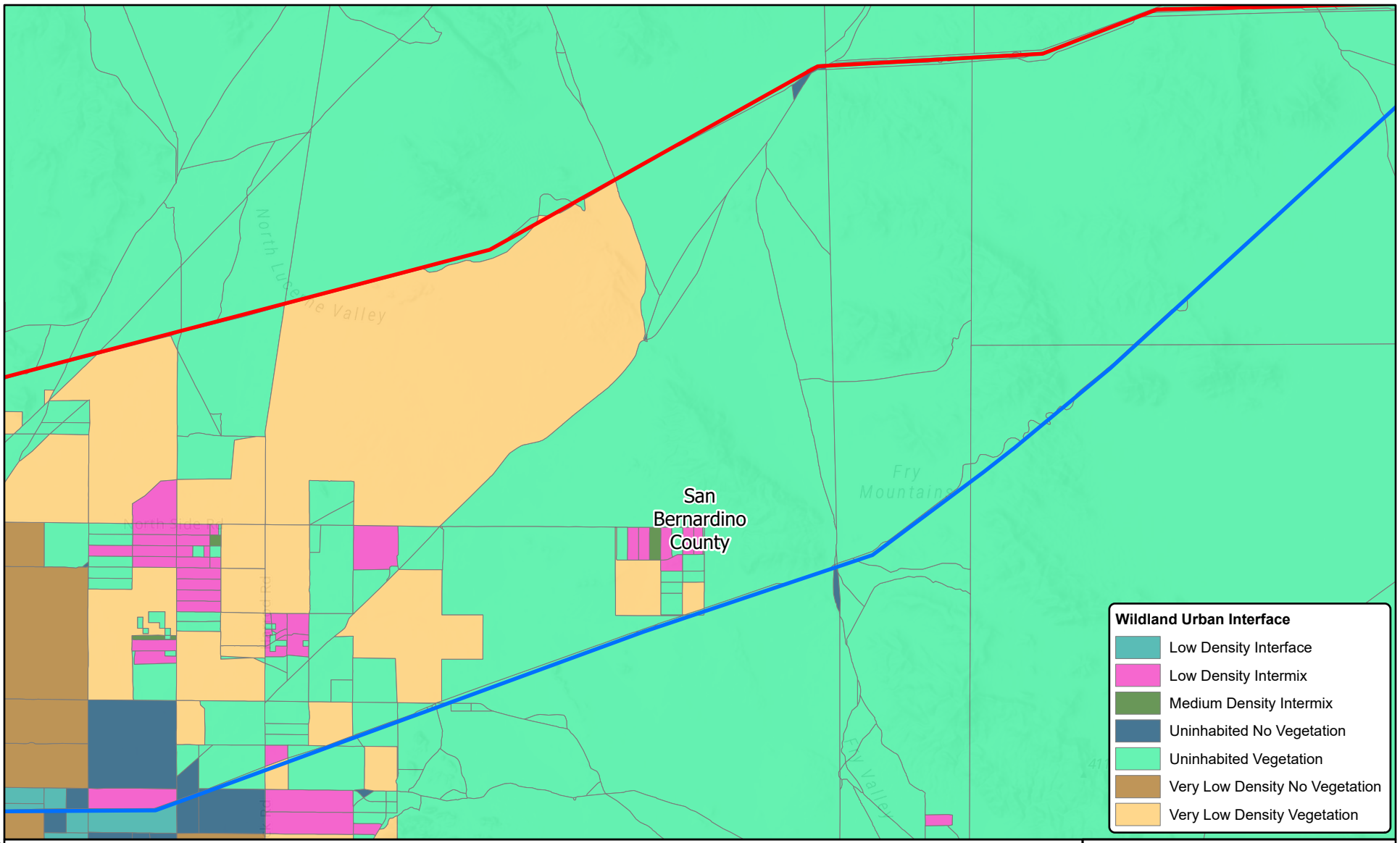

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Legend

- Substations
- Segment 1
- Segment 2
- County Boundary
- City Boundary

NOTES:
Sources: https://sbcta-gis.sanbag.ca.gov/arcgis/rest/services/Sidewalk/MapServer/0

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Miles

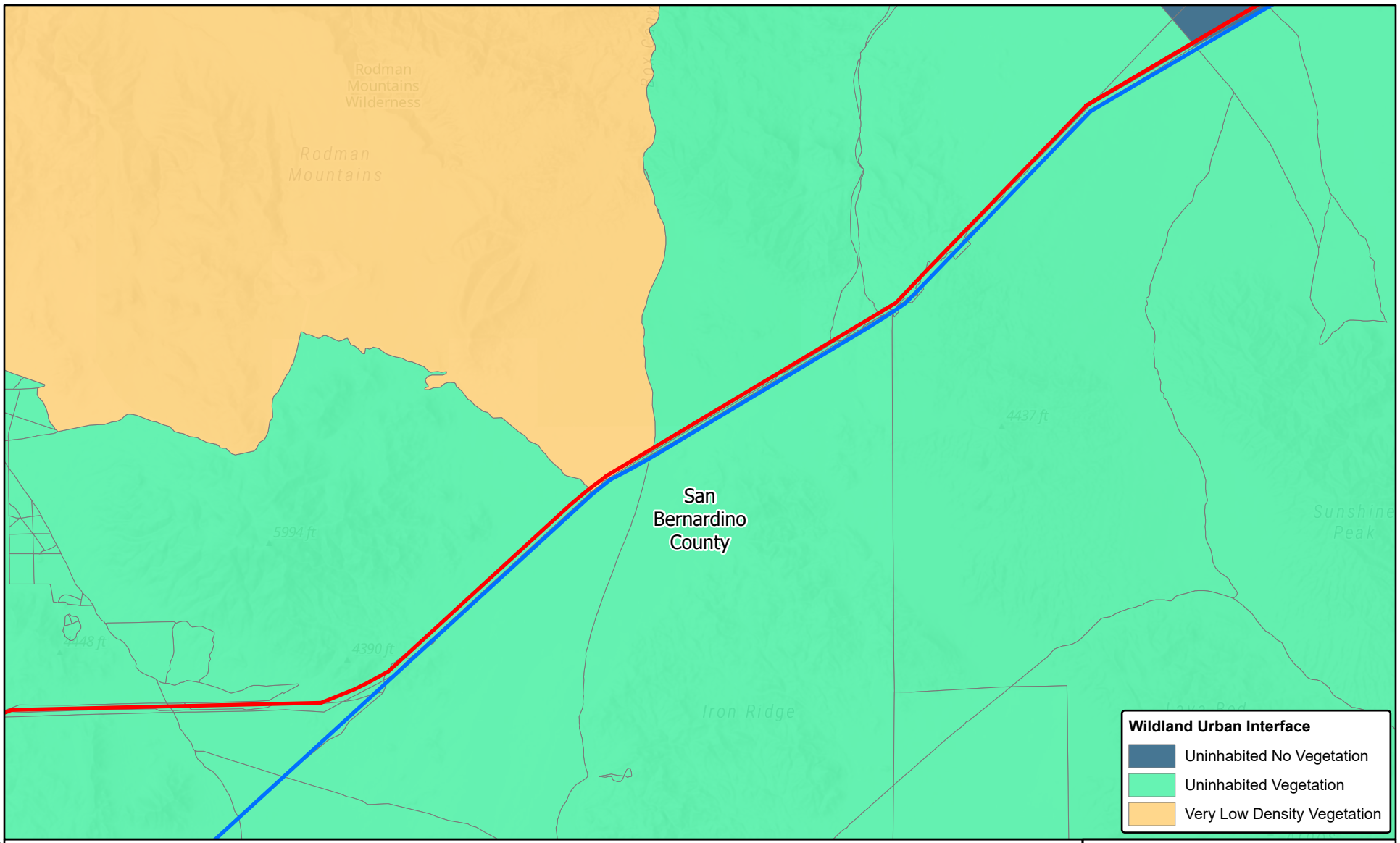
N

ELDORADO-PISGAH-LUGO 220 kV PROJECT

WILDLAND URBAN INTERFACE

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.20-2b



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Legend

- Substations
- Segment 1
- Segment 2
- County Boundary
- City Boundary

NOTES:
Sources: https://sbcta-gis.sanbag.ca.gov/arcgis/rest/services/Sidewalk/MapServer/0

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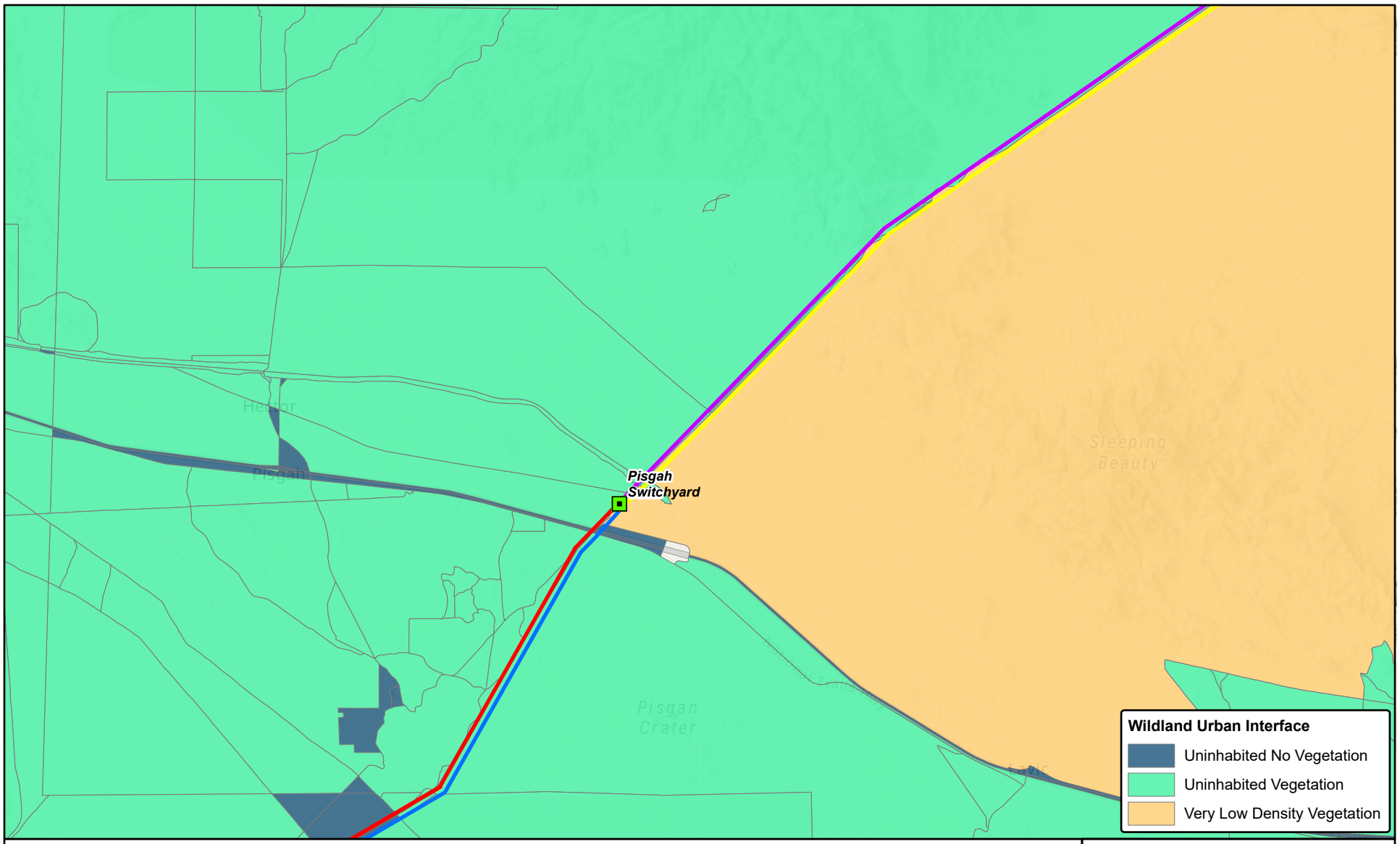
0 1 2
Miles

ELDORADO-PISGAH-LUGO 220 kV PROJECT

WILDLAND URBAN INTERFACE

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.20-2b



Legend

- Substations
- Segment 1
- Segment 2
- Segment 3
- Segment 4
- County Boundary
- City Boundary

NOTES:
Sources: https://sbcta-gis.sanbag.ca.gov/arcgis/rest/services/Sidewalk/MapServer/0

N

0 1 2
Miles

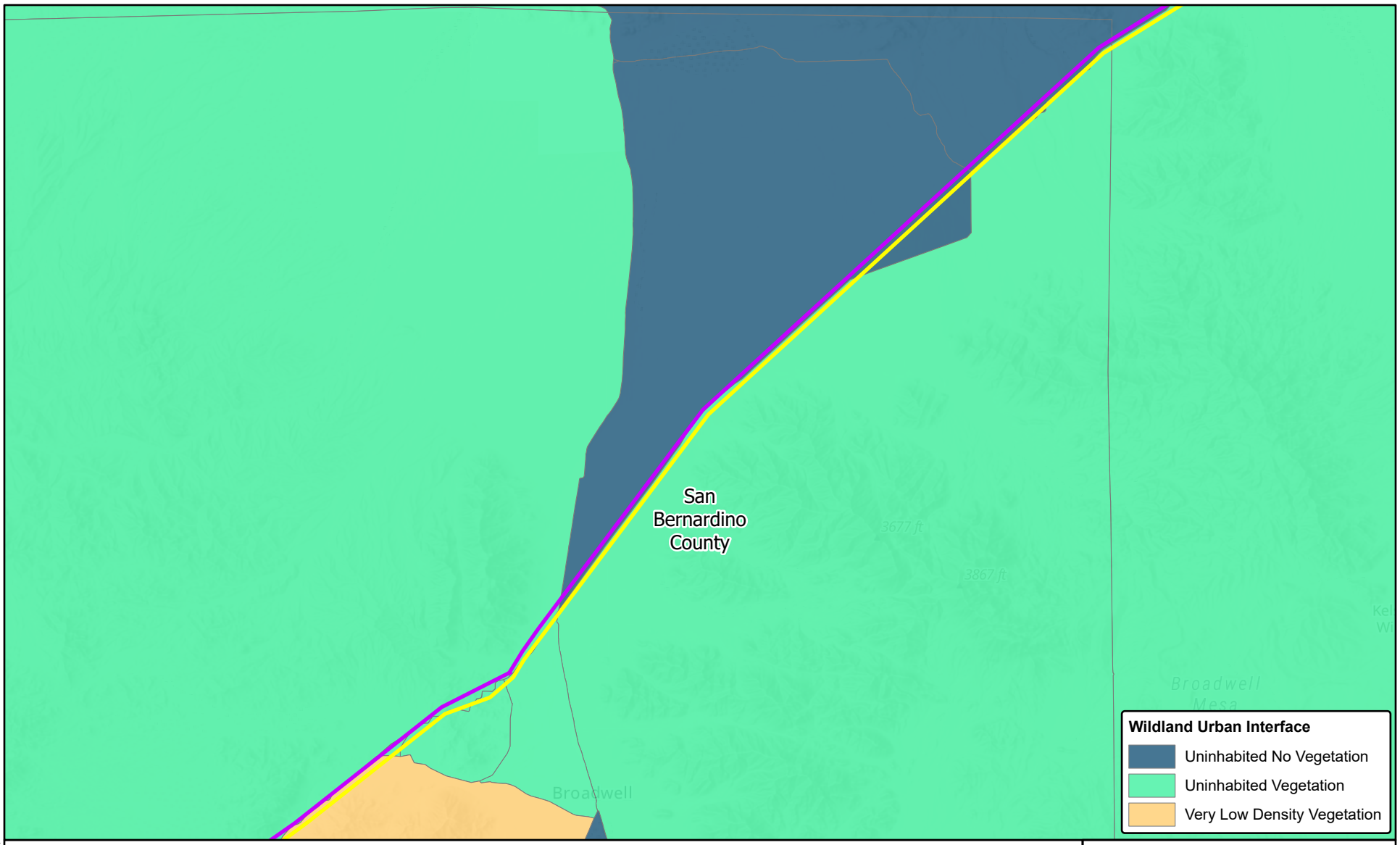
ELDORADO-PISGAH-LUGO 220 kV PROJECT

WILDLAND URBAN INTERFACE

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.20-2b

Folder: T:_ENV\SCE\SCE_TLLR\ArcGIS_Pro\



Legend

- Substations
- Segment 3
- Segment 4
- County Boundary
- City Boundary

NOTES:
Sources: https://sbcta-gis.sanbag.ca.gov/arcgis/rest/services/Sidewalk/MapServer/0

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Miles

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ELDORADO-PISGAH-LUGO 220 kV PROJECT

WILDLAND URBAN INTERFACE

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.20-2b

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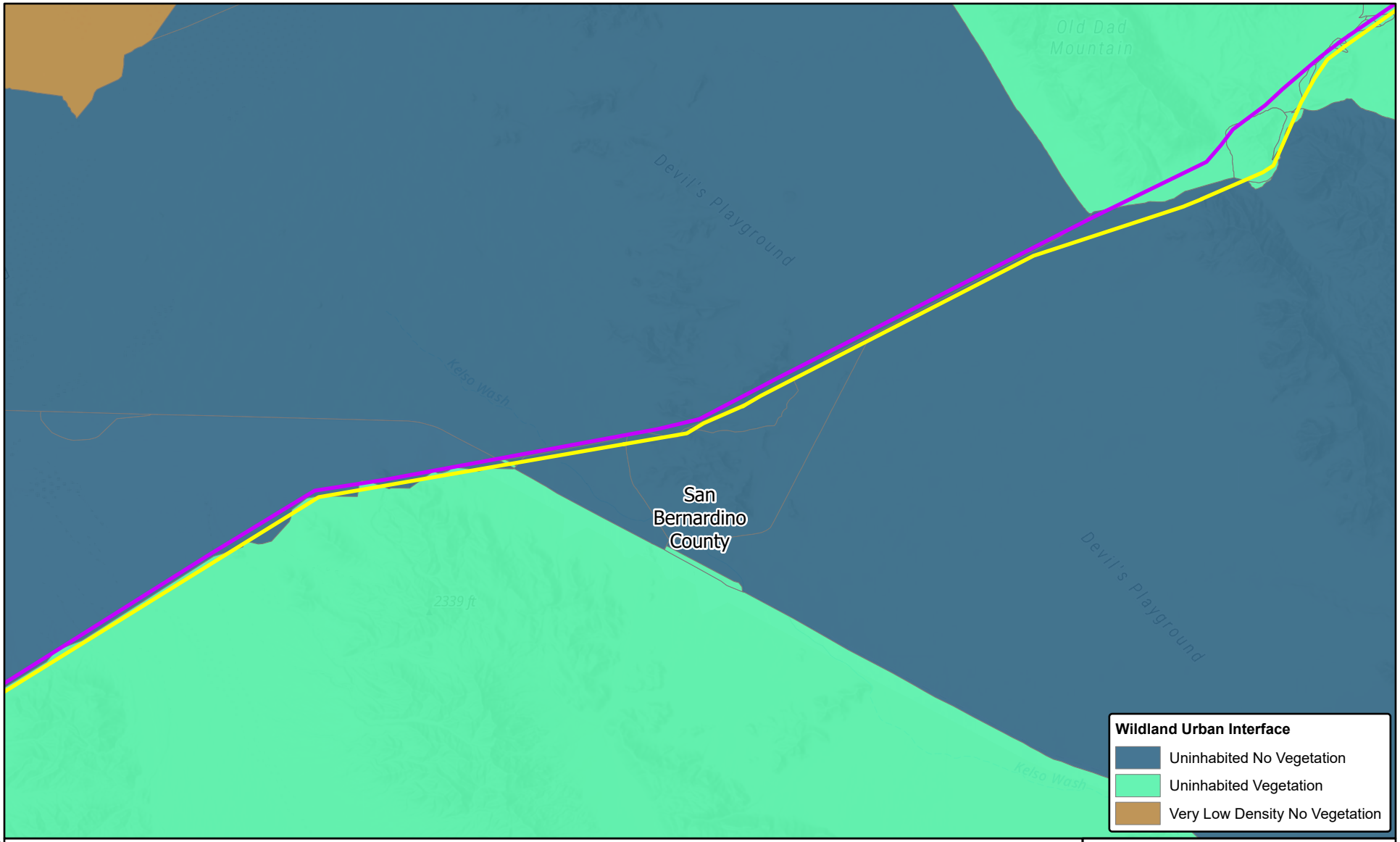

Legend

- Substations
- Segment 3
- Segment 4
- County Boundary
- City Boundary

NOTES:
Sources: https://sbcta-gis.sanbag.ca.gov/arcgis/rest/services/Sidewalk/MapServer/0

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Miles

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ELDORADO-PISGAH-LUGO 220 kV PROJECT

WILDLAND URBAN INTERFACE

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.20-2b

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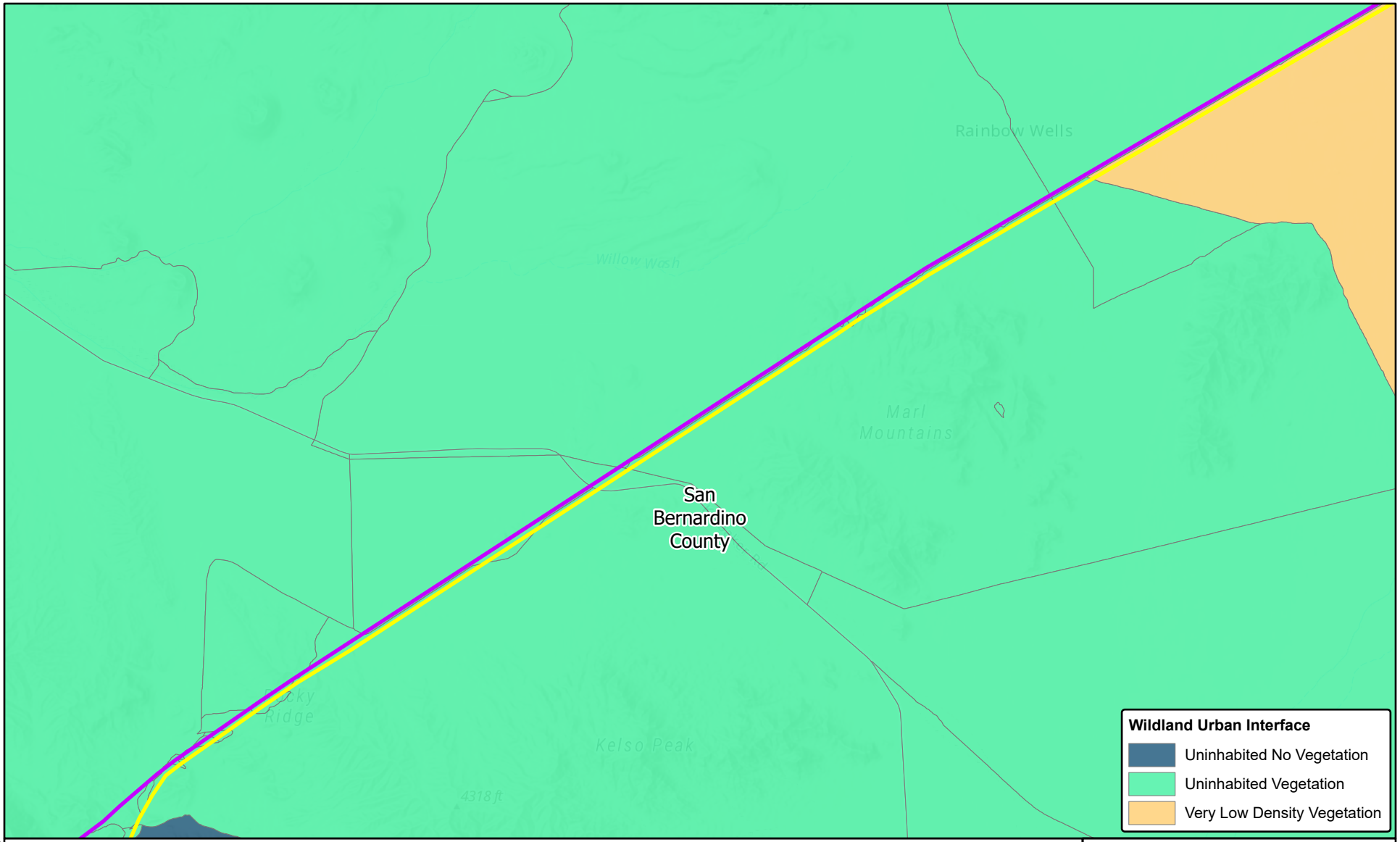

Folder: T:_ENV\SCE\SCE_TLLR\ArcGIS_Pro\

Legend

- Substations
- Segment 3
- Segment 4
- County Boundary
- City Boundary

NOTES:
Sources: https://sbcta-gis.sanbag.ca.gov/arcgis/rest/services/Sidewalk/MapServer/0

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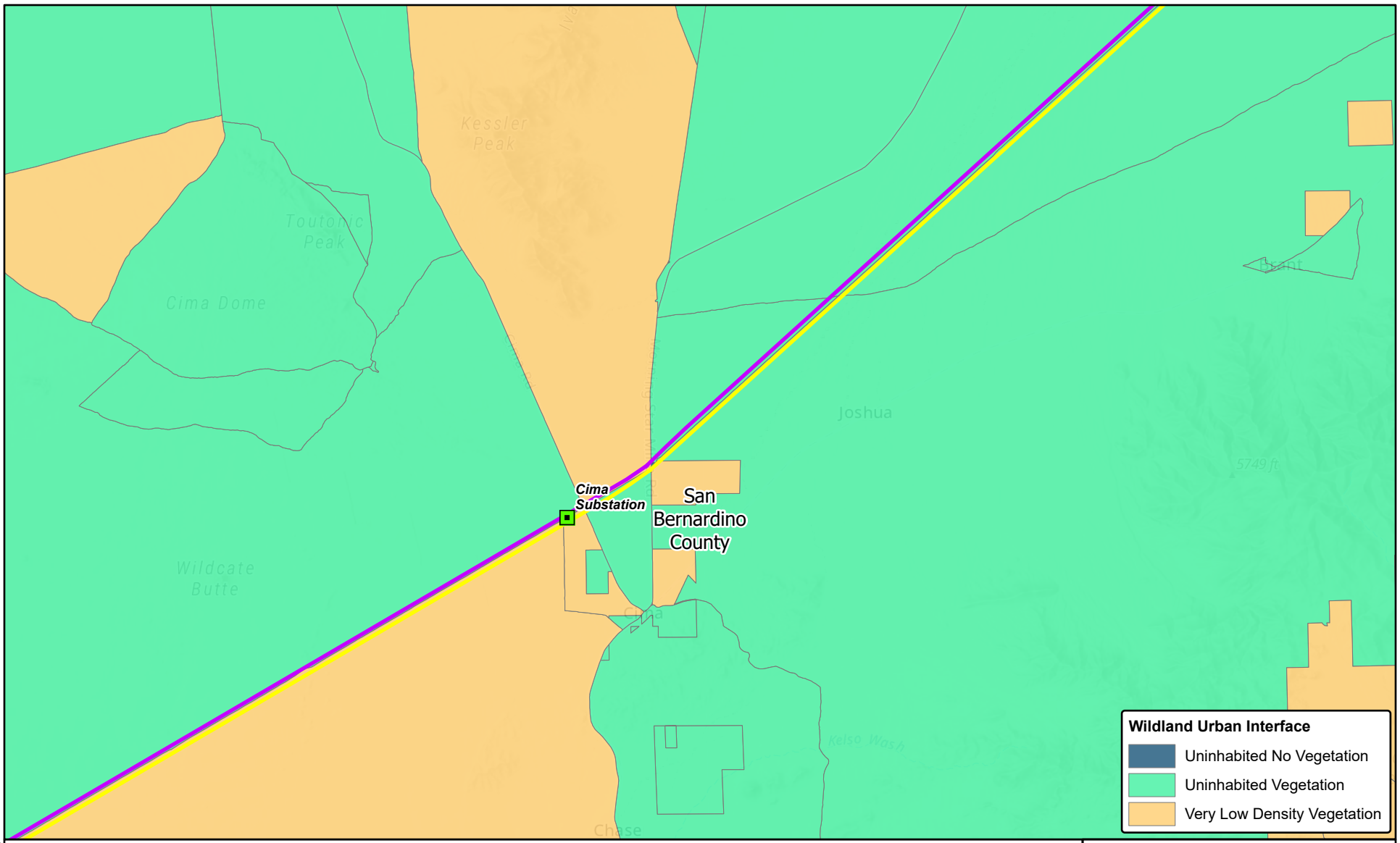
ELDORADO-PISGAH-LUGO 220 kV PROJECT

WILDLAND URBAN INTERFACE

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.20-2b



Legend

- Substations
- Segment 3
- Segment 4
- County Boundary
- City Boundary

Folder: T:_ENV\SCE\SCE_TLLR\ArcGIS_Pro\

NOTES:
Sources: https://sbcta-gis.sanbag.ca.gov/arcgis/rest/services/Sidewalk/MapServer/0

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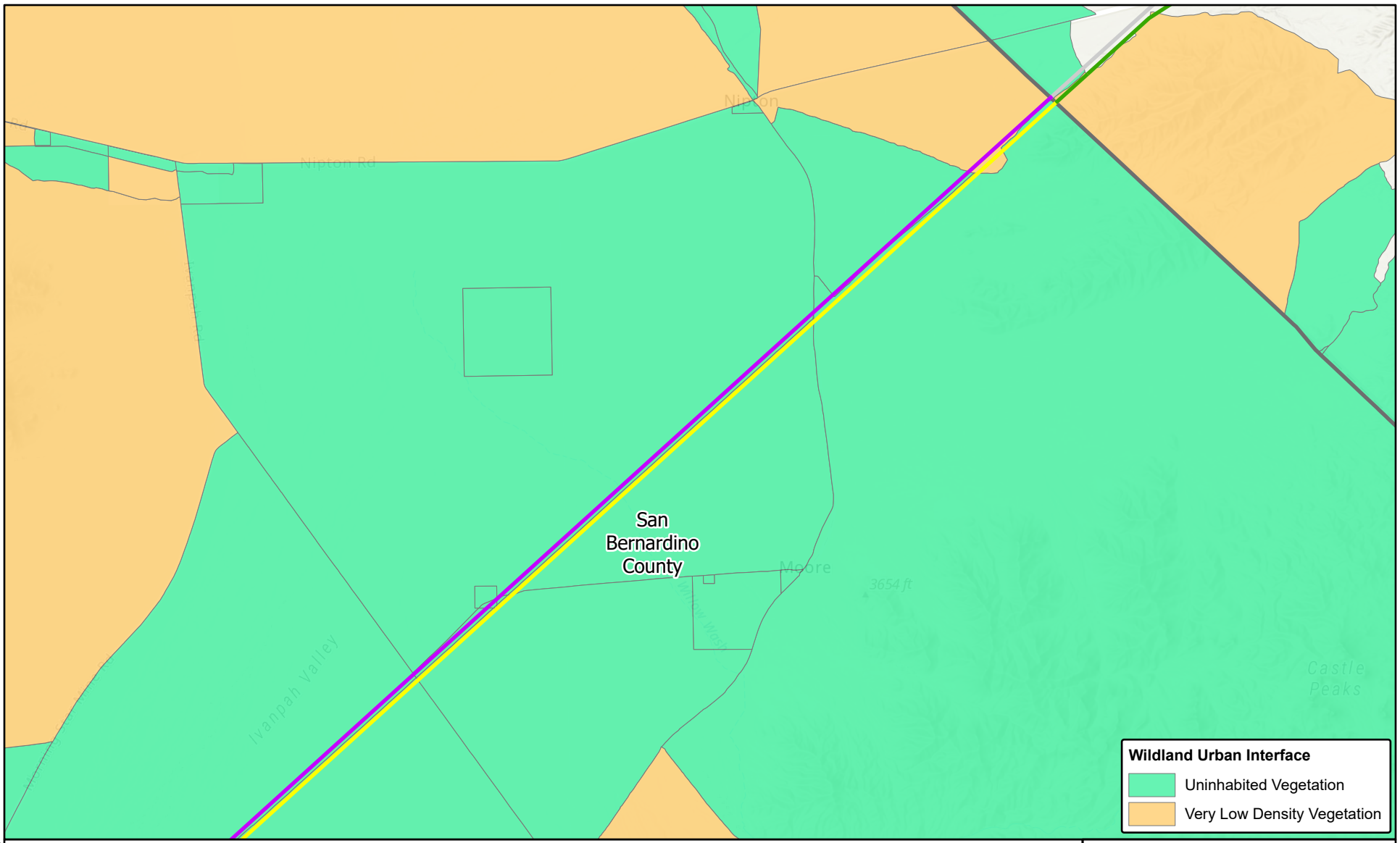
Miles

ELDORADO-PISGAH-LUGO 220 kV PROJECT

WILDLAND URBAN INTERFACE

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.20-2b



Legend

- Substations
- Segment 3
- Segment 4
- Segment 5
- Segment 6
- County Boundary
- City Boundary

NOTES:
Sources: https://sbcta-gis.sanbag.ca.gov/arcgis/rest/services/Sidewalk/MapServer/0

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Miles

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ELDORADO-PISGAH-LUGO 220 kV PROJECT

WILDLAND URBAN INTERFACE

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.20-2b

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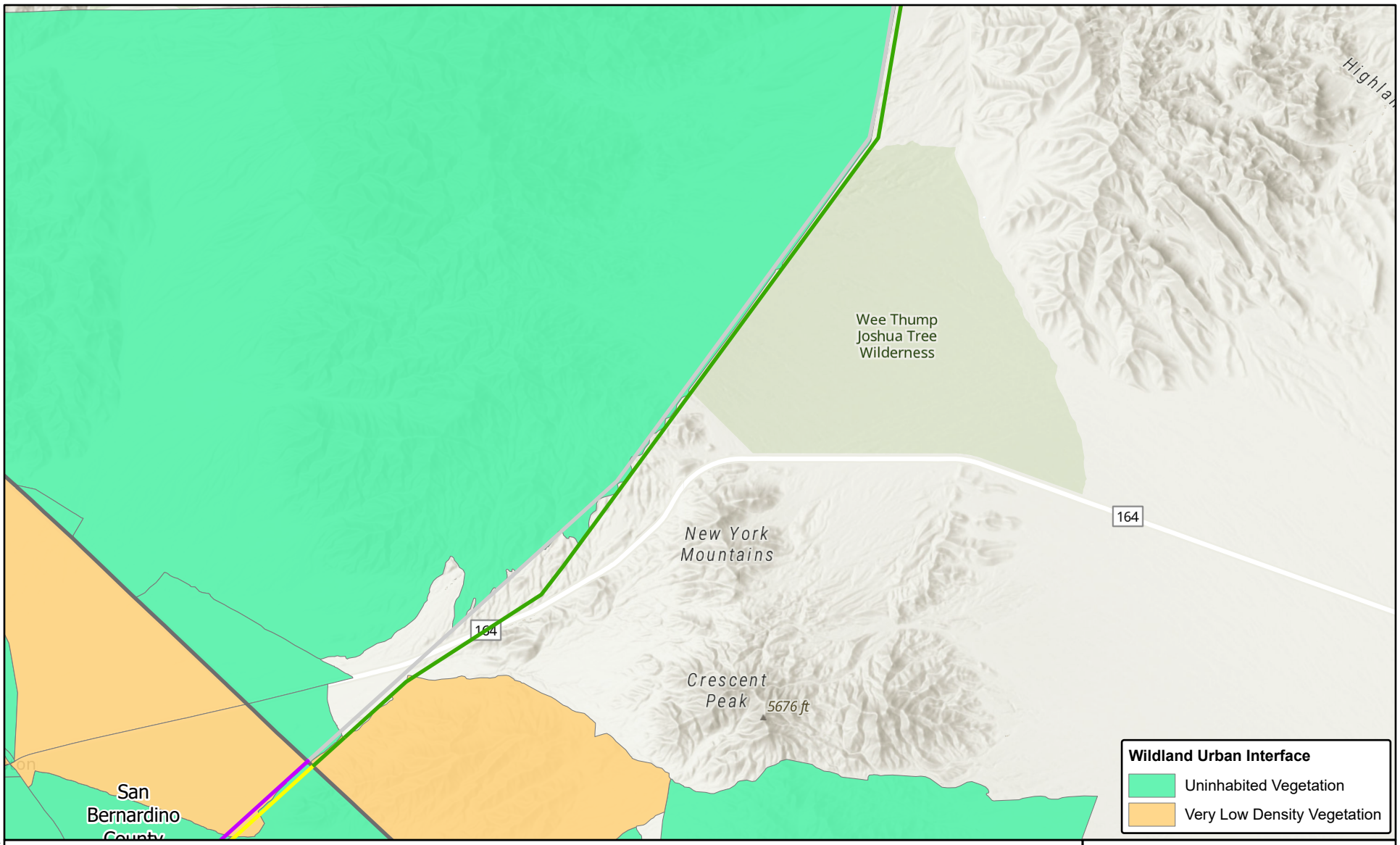

Folder: T:_ENV\SCE\SCE_TLLR\ArcGIS_Pro\

Legend

- Substations
- Segment 3
- Segment 4
- Segment 5
- Segment 6
- County Boundary
- City Boundary

NOTES:
Sources: https://sbcta-gis.sanbag.ca.gov/arcgis/rest/services/Sidewalk/MapServer/0

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Miles

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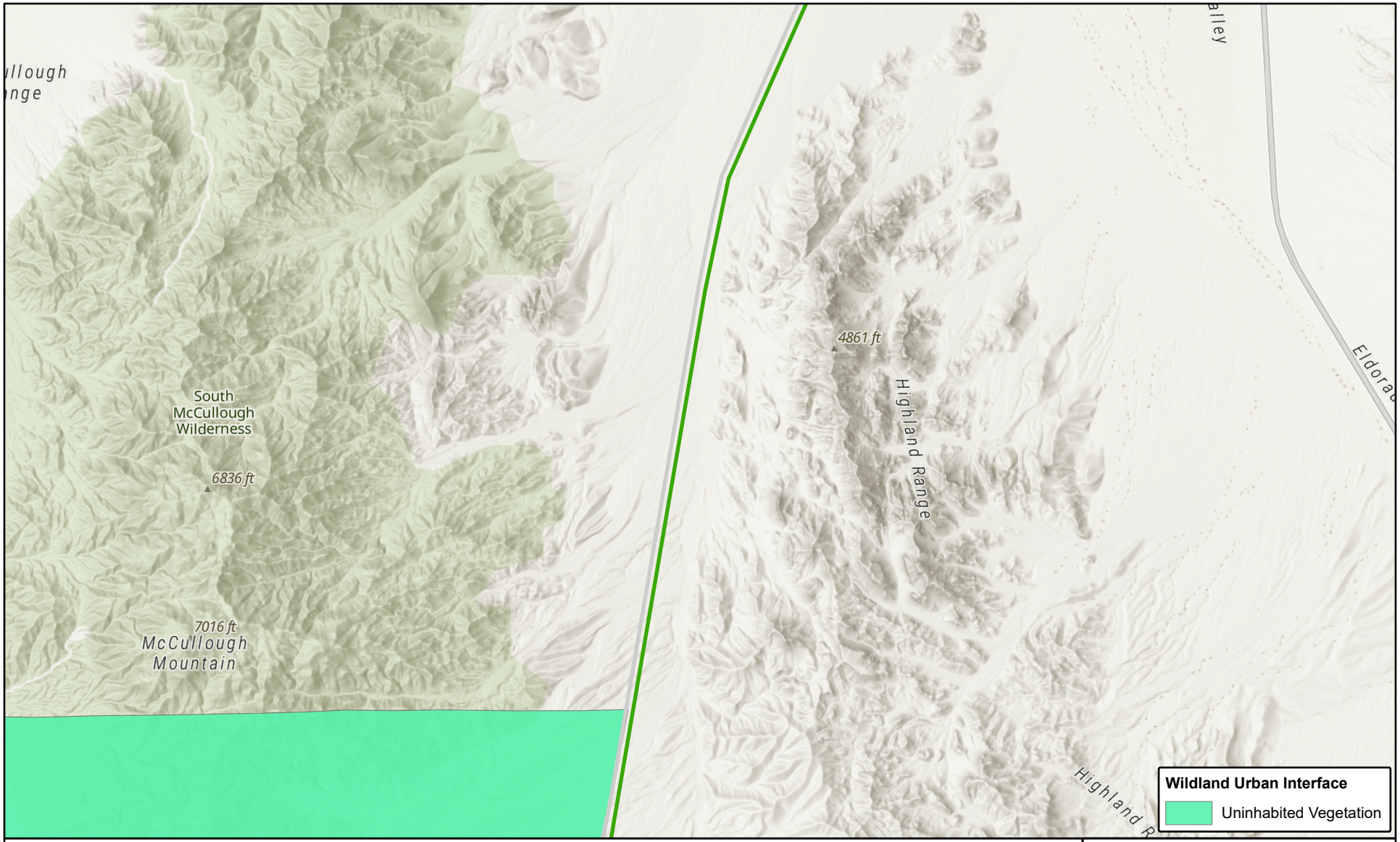
ELDORADO-PISGAH-LUGO 220 kV PROJECT

WILDLAND URBAN INTERFACE

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE
5.20-2b



Legend

- Substations
- Segment 5
- Segment 6
- County Boundary
- City Boundary

NOTES:
Sources: https://sbcta-gis.sanbag.ca.gov/arcgis/rest/services/Sidewalk/MapServer/0

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0 1 2
Miles

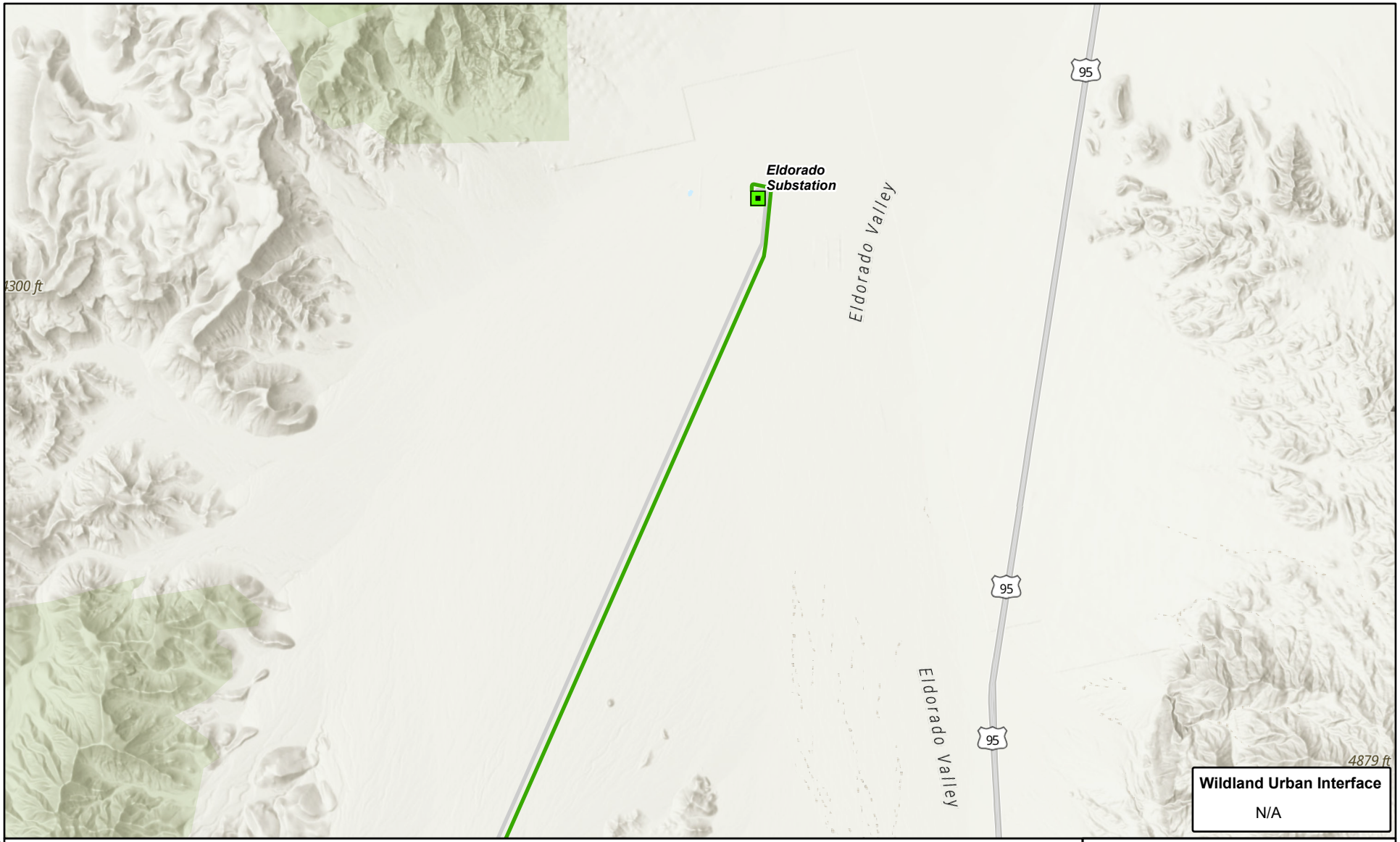
ELDORADO-PISGAH-LUGO 220 kV PROJECT

WILDLAND URBAN INTERFACE

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.20-2b

Folder: T:_ENV\SCE\SCE_TLLR\ArcGIS_Pro\



Legend

- Substations
- Segment 5
- Segment 6
- County Boundary
- City Boundary

NOTES:
Sources: https://sbcta-gis.sanbag.ca.gov/arcgis/rest/services/Sidewalk/MapServer/0

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Miles

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ELDORADO-PISGAH-LUGO 220 kV PROJECT

WILDLAND URBAN INTERFACE

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.20-2b

Folder: T:_ENV\SCE\SCE_TLLR\ArcGIS_Pro\

Legend

- Substations
- Segment 1
- Segment 2
- Segment 3
- Segment 4
- Segment 5
- Segment 6
- County Boundary

CPUC Fire Threat

- Tier 2
- Tier 3

NOTES:
Sources: https://www.cpuc.ca.gov/industries-and-topics/wildfires/fire-threat-maps-and-fire-safety-rulemaking

0 15 30
Miles

N

ELDORADO-PISGAH-LUGO 220 kV PROJECT

CPUC FIRE THREAT

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.20-3

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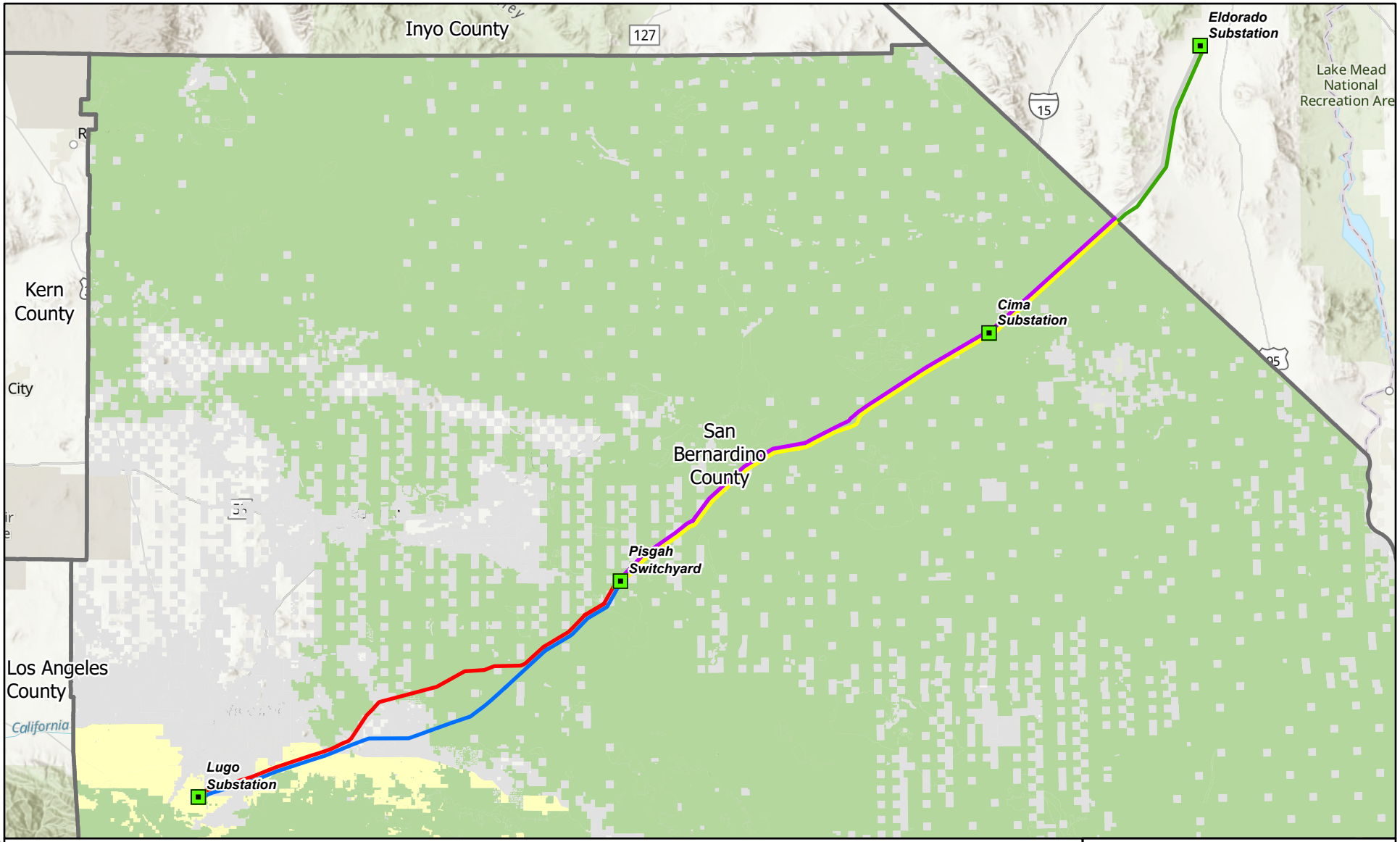


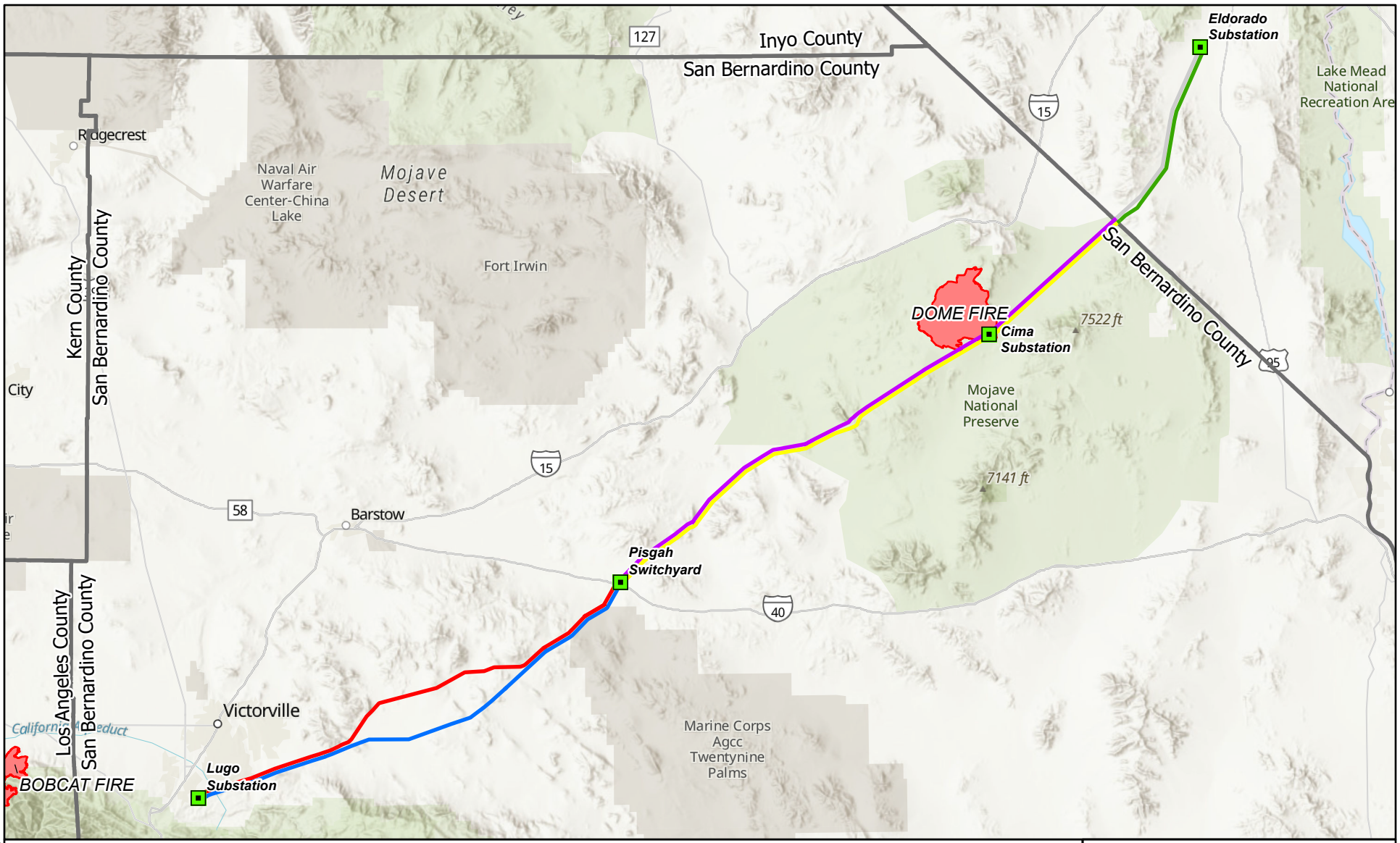
ELDORADO-PISGAH-LUGO 220 kV PROJECT

RESPONSIBILITY AREAS

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company

ARCADIS

FIGURE 5.20-4



Legend

- Substations
- Segment 1
- Segment 2
- Segment 3
- Segment 4
- Segment 5
- Segment 6
- County Boundary

Large Fire Perimeters (>=5000 acres)

- 2020

NOTES:
Sources: https://services1.arcgis.com/jUJYIo9tSA7EHvfZ/ArcGIS/rest/services/California_Fire_Perimeters/FeatureServer

0 15 30
Miles

N

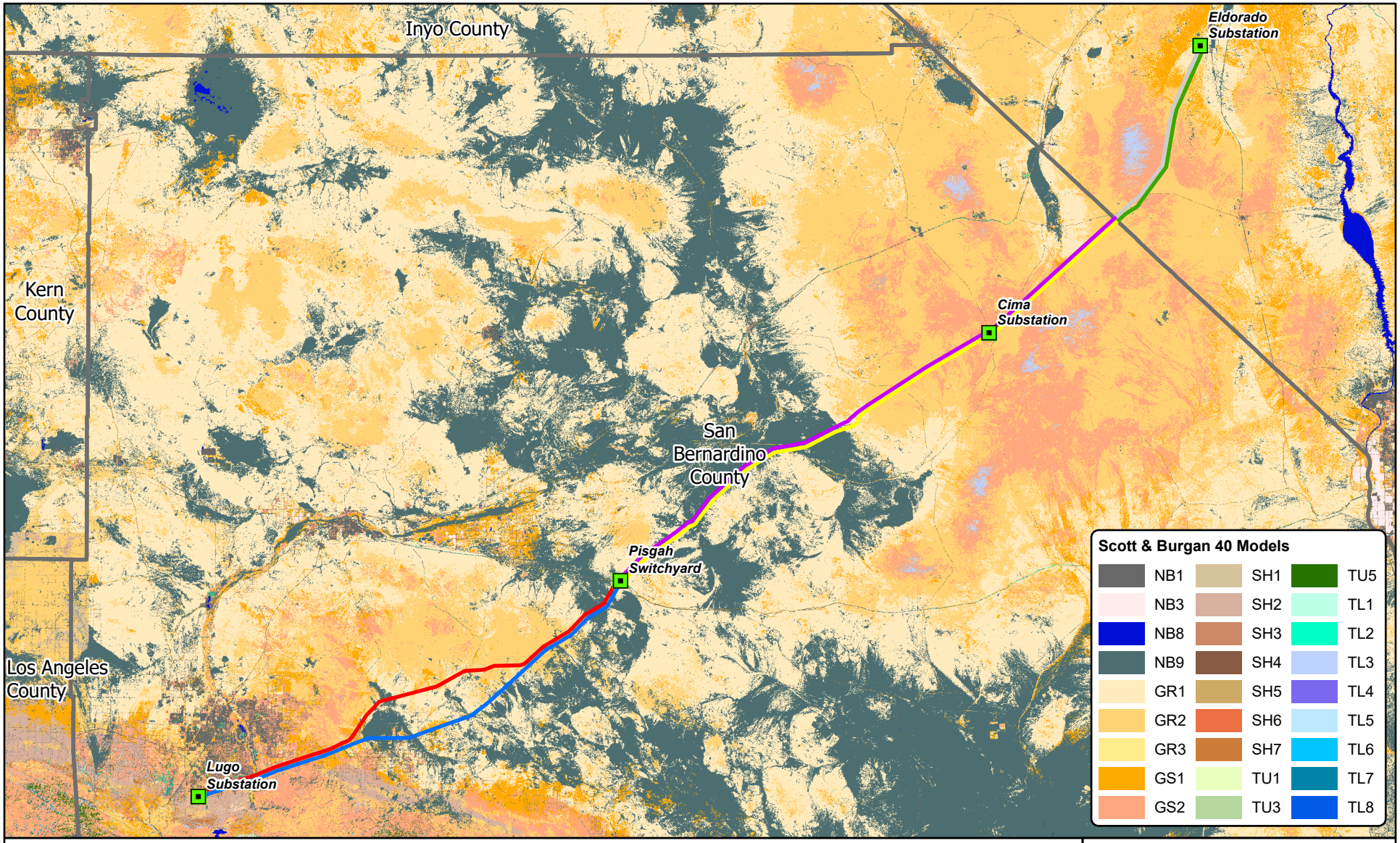
ELDORADO-PISGAH-LUGO 220 kV PROJECT

FIRE OCCURRENCE

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.20-5

Folder: T:_ENV\SCE\SCE_TLLR\ArcGIS_Pro\



Legend

- Substations
- Segment 1
- Segment 2
- Segment 3
- Segment 4
- Segment 5
- Segment 6
- County Boundary

NOTES:
Sources: https://apps.fs.usda.gov/fsgisx01/services/RDW_Landfire/US_40ScottAndBurganFBFM_v200/ImageServer

0 15 30
Miles

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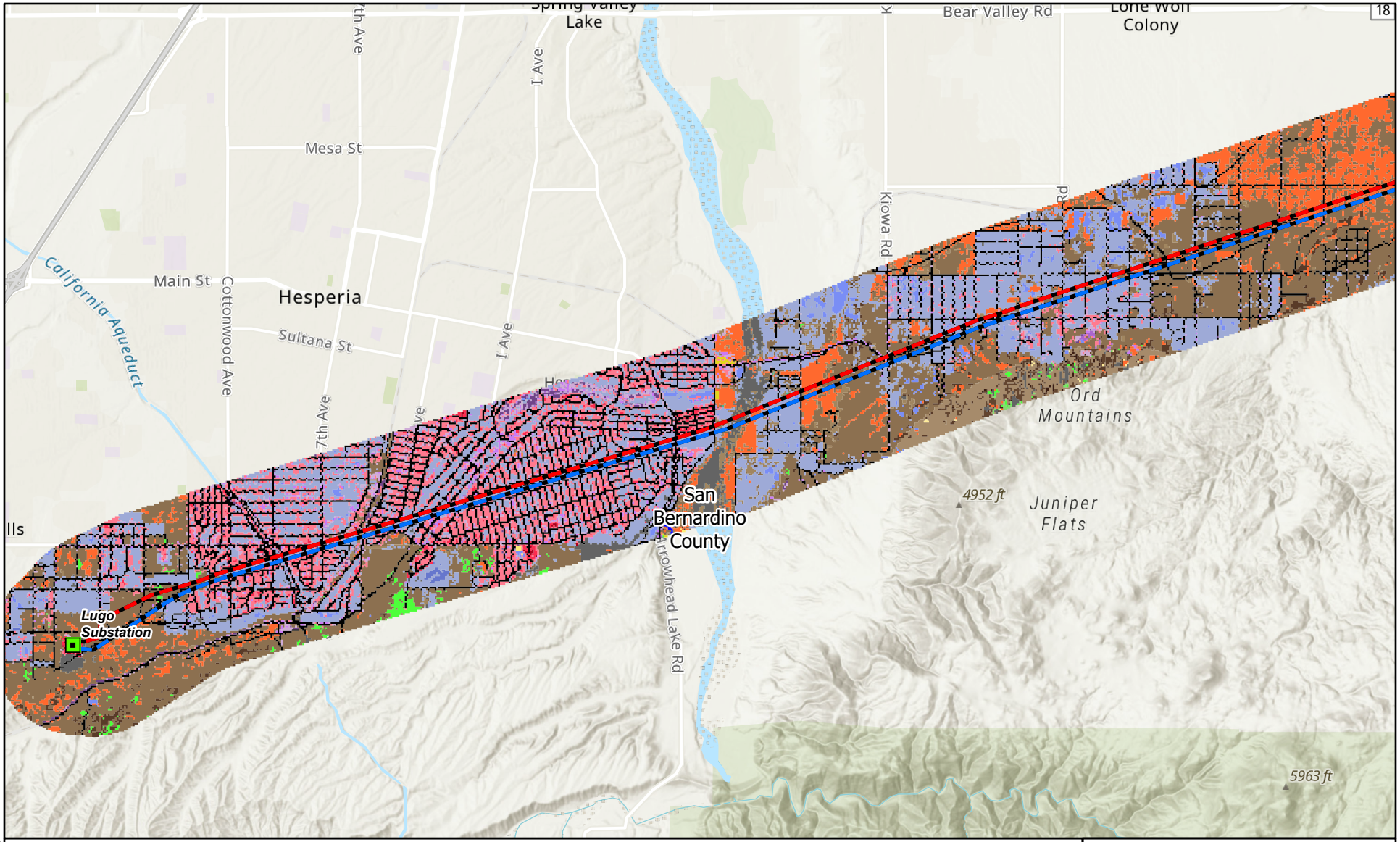
ELDORADO-PISGAH-LUGO 220 kV PROJECT

SCOTT AND BURGAN FIRE BEHAVIOR FUEL MODELING

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.20-6

Folder: T:_ENV\SCE\SCE_TLLR\ArcGIS_Pro\



Legend

- Substations
- Segment 1
- Segment 2
- County Boundary

NOTES:
Sources: https://landfire.gov/viewer/

Page 1 of 13

N

0 1 2
Miles

ELDORADO-PISGAH-LUGO 220 kV PROJECT

USDA FIRE EFFECTS INFORMATION SYSTEM VEGETATION TYPES

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.20-7

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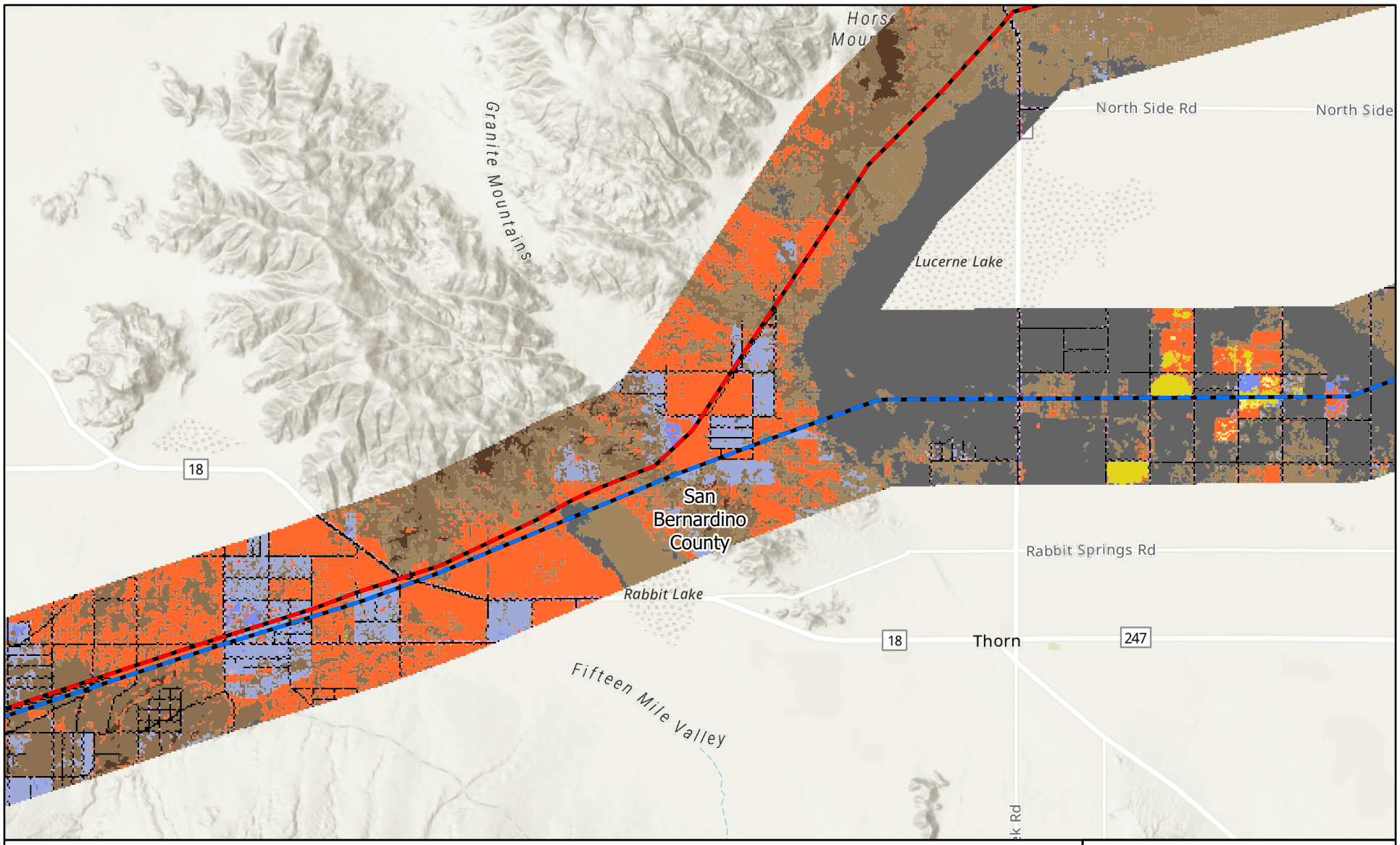

Legend

- Substations
- Segment 1
- Segment 2
- County Boundary

NOTES:
Sources: https://landfire.gov/viewer/

0 1 2
Miles

N

Page 2 of 13

ELDORADO-PISGAH-LUGO 220 kV PROJECT

USDA FIRE EFFECTS INFORMATION SYSTEM VEGETATION TYPES

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.20-7

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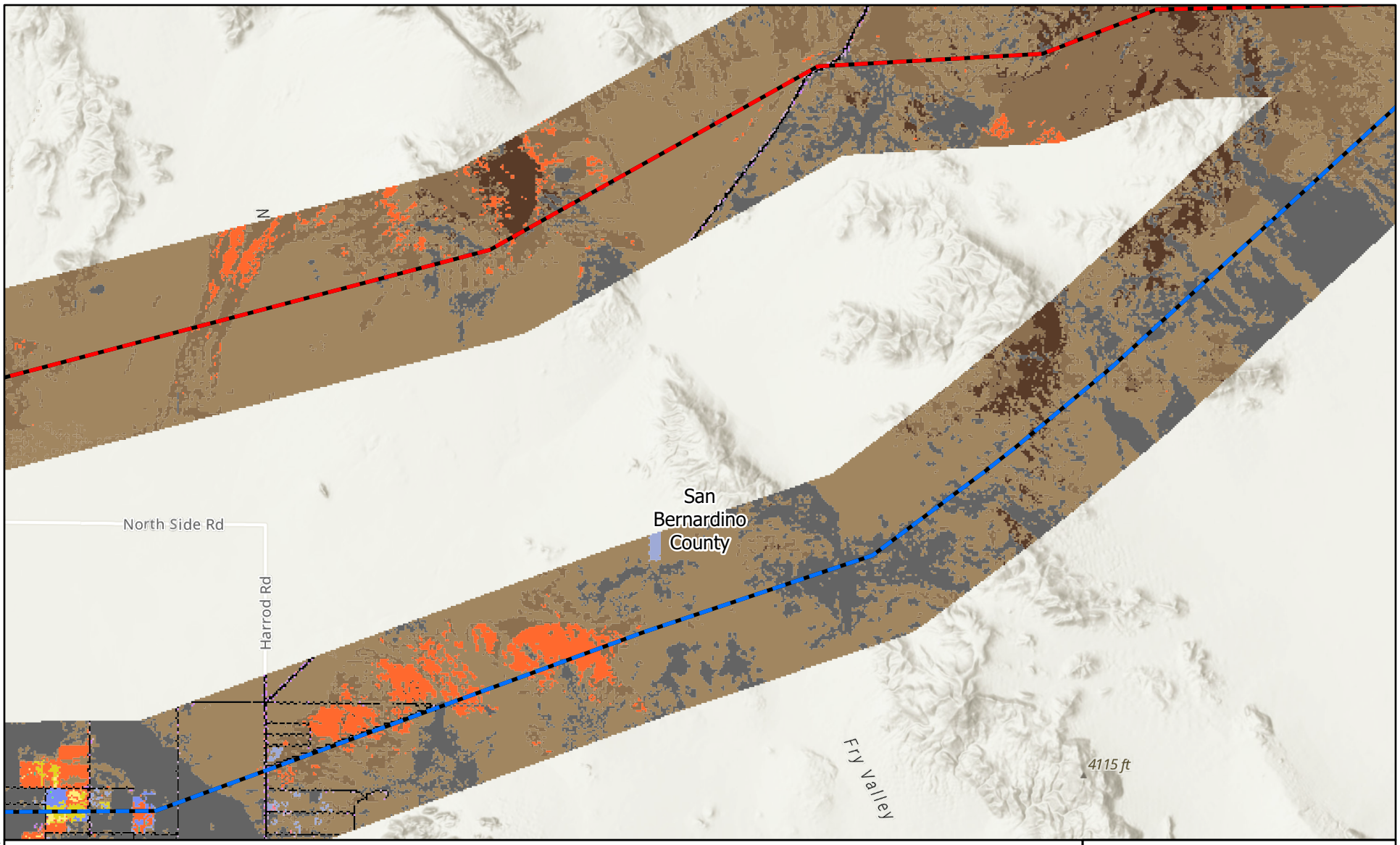

Legend

- Substations
- Segment 1
- Segment 2
- County Boundary

NOTES:
Sources: https://landfire.gov/viewer/

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Miles

ELDORADO-PISGAH-LUGO 220 kV PROJECT

USDA FIRE EFFECTS INFORMATION SYSTEM VEGETATION TYPES

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.20-7

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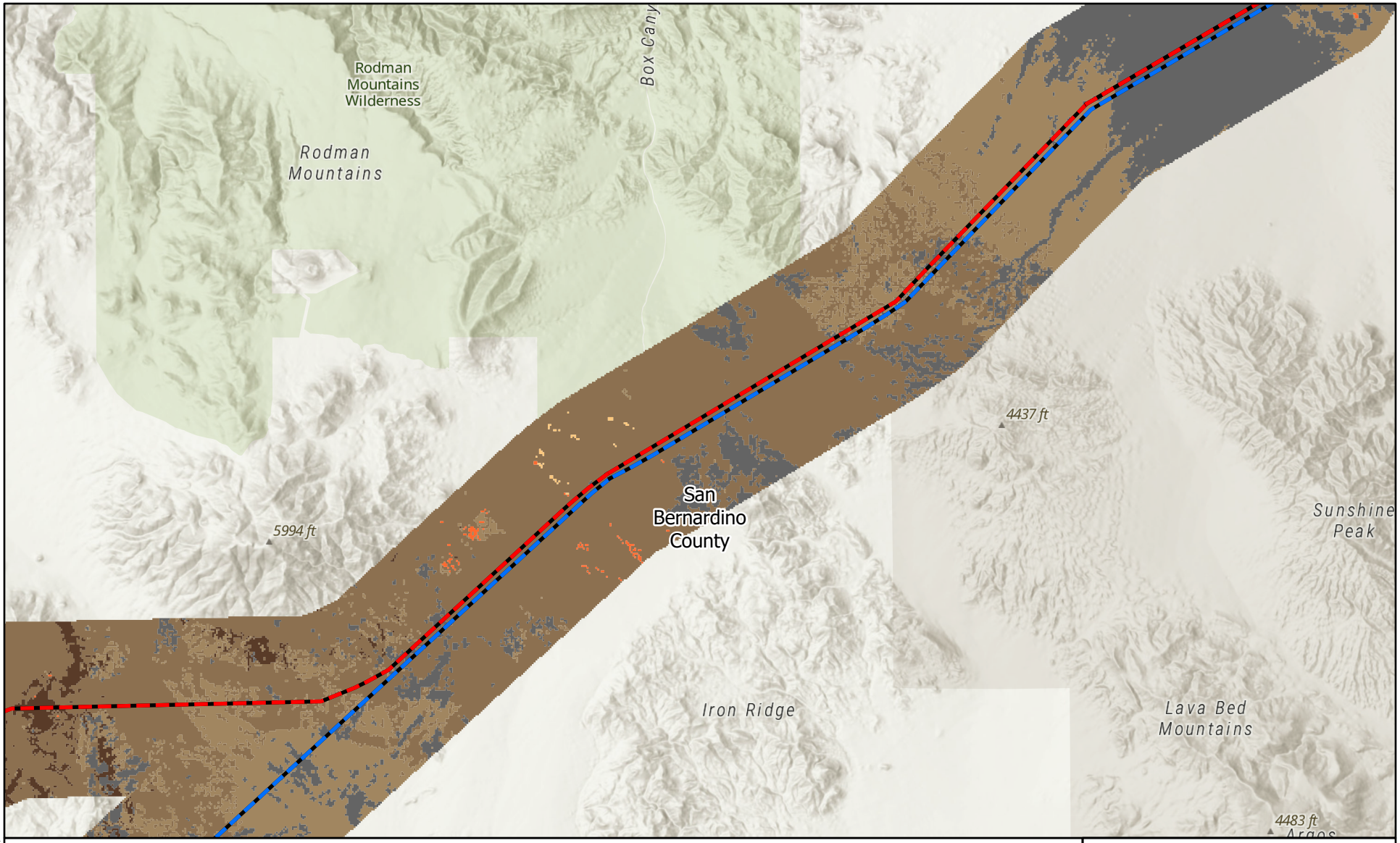

Legend

- Substations
- Segment 1
- Segment 2
- County Boundary

NOTES:
Sources: https://landfire.gov/viewer/

0 1 2
Miles

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ELDORADO-PISGAH-LUGO 220 kV PROJECT

USDA FIRE EFFECTS INFORMATION SYSTEM VEGETATION TYPES

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.20-7

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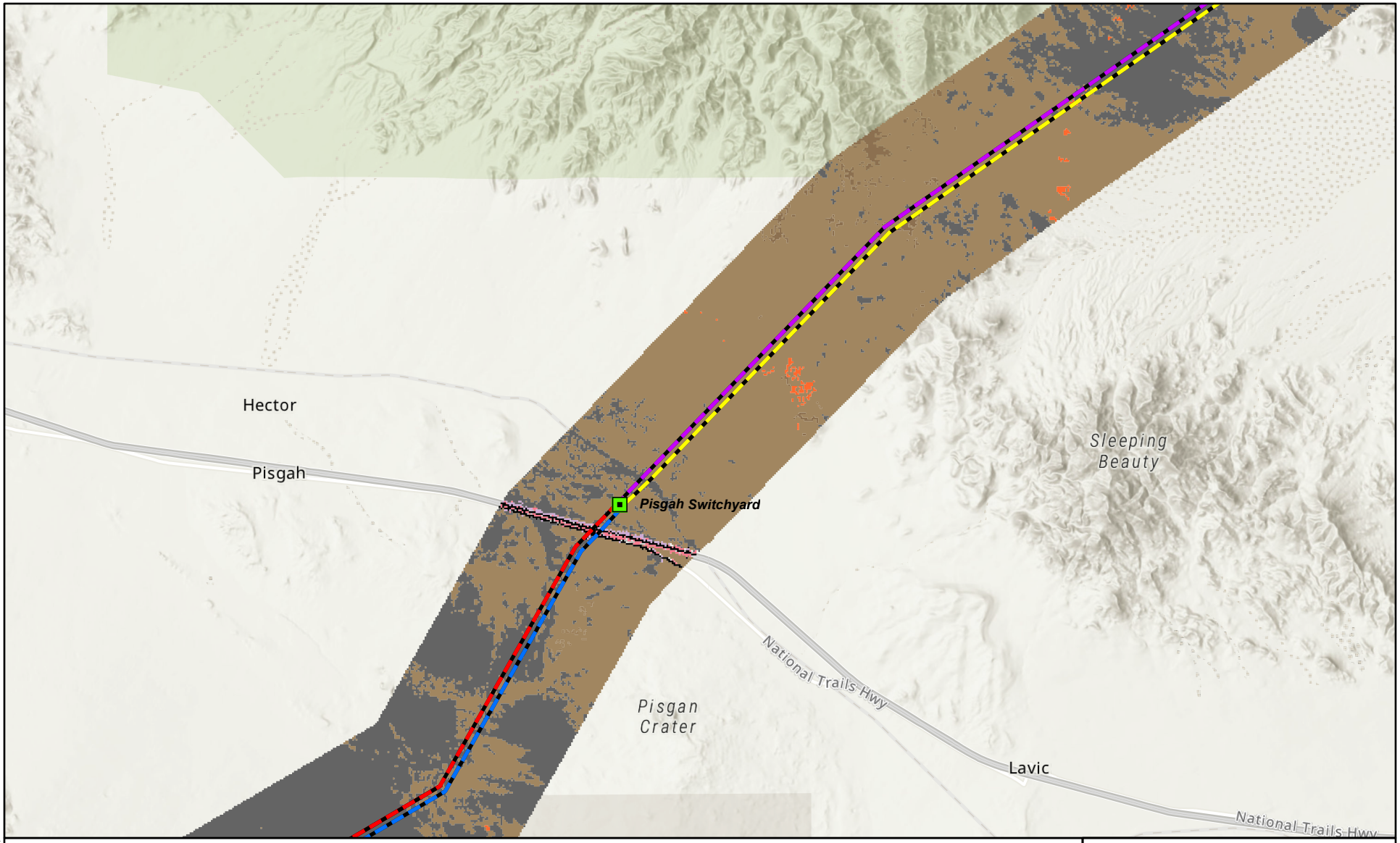

Folder: T:_ENV\SCE\SCE_TLLR\ArcGIS_Pro\

Legend

- Substations
- Segment 1
- Segment 2
- Segment 3
- Segment 4
- County Boundary

NOTES:
Sources: https://landfire.gov/viewer/

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Miles

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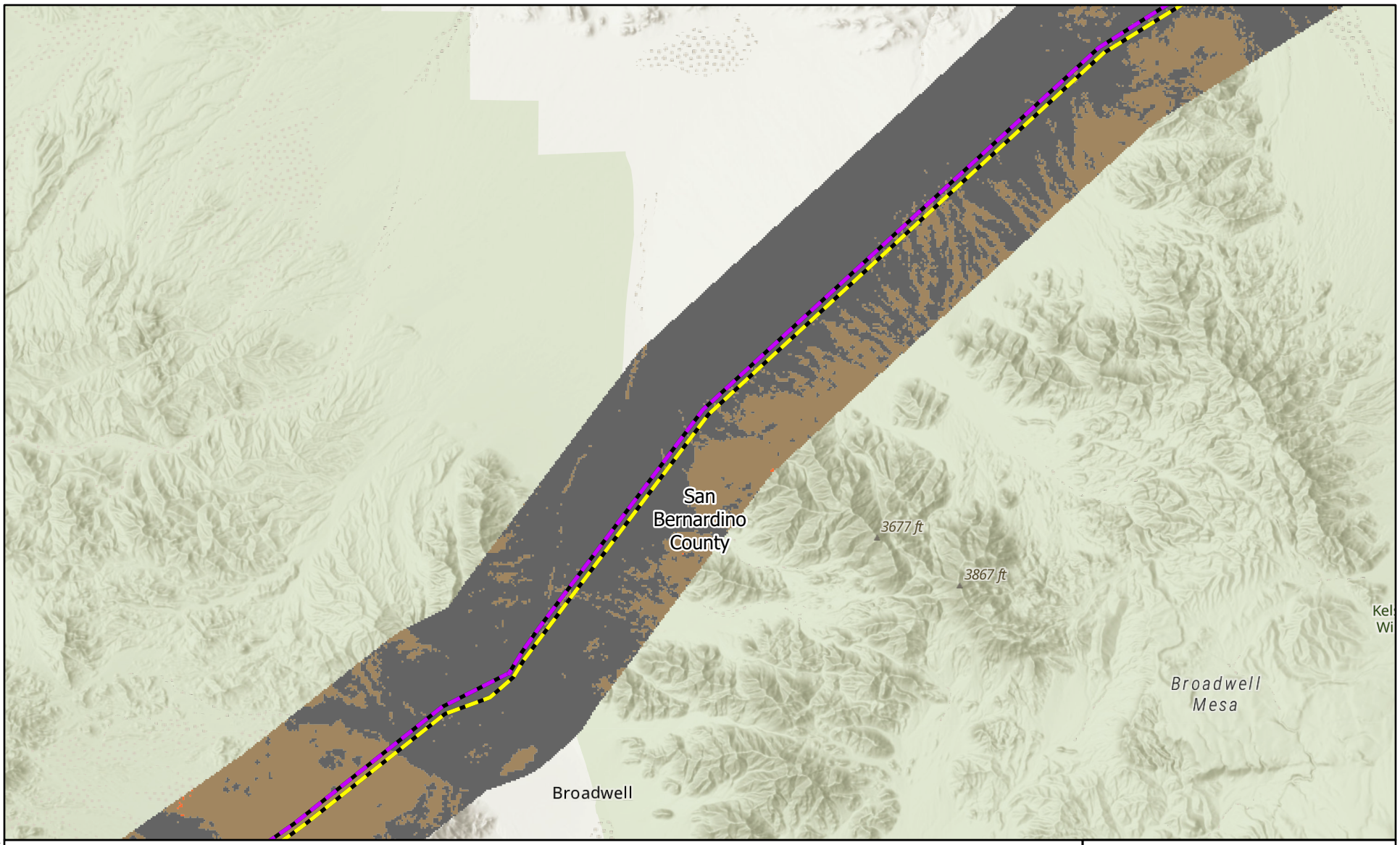
ELDORADO-PISGAH-LUGO 220 kV PROJECT

USDA FIRE EFFECTS INFORMATION SYSTEM VEGETATION TYPES

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.20-7



Legend

- Substations
- Segment 4
- Segment 3
- County Boundary

NOTES:
Sources: https://landfire.gov/viewer/

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0 1 2
Miles

ELDORADO-PISGAH-LUGO 220 kV PROJECT

USDA FIRE EFFECTS INFORMATION SYSTEM VEGETATION TYPES

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.20-7

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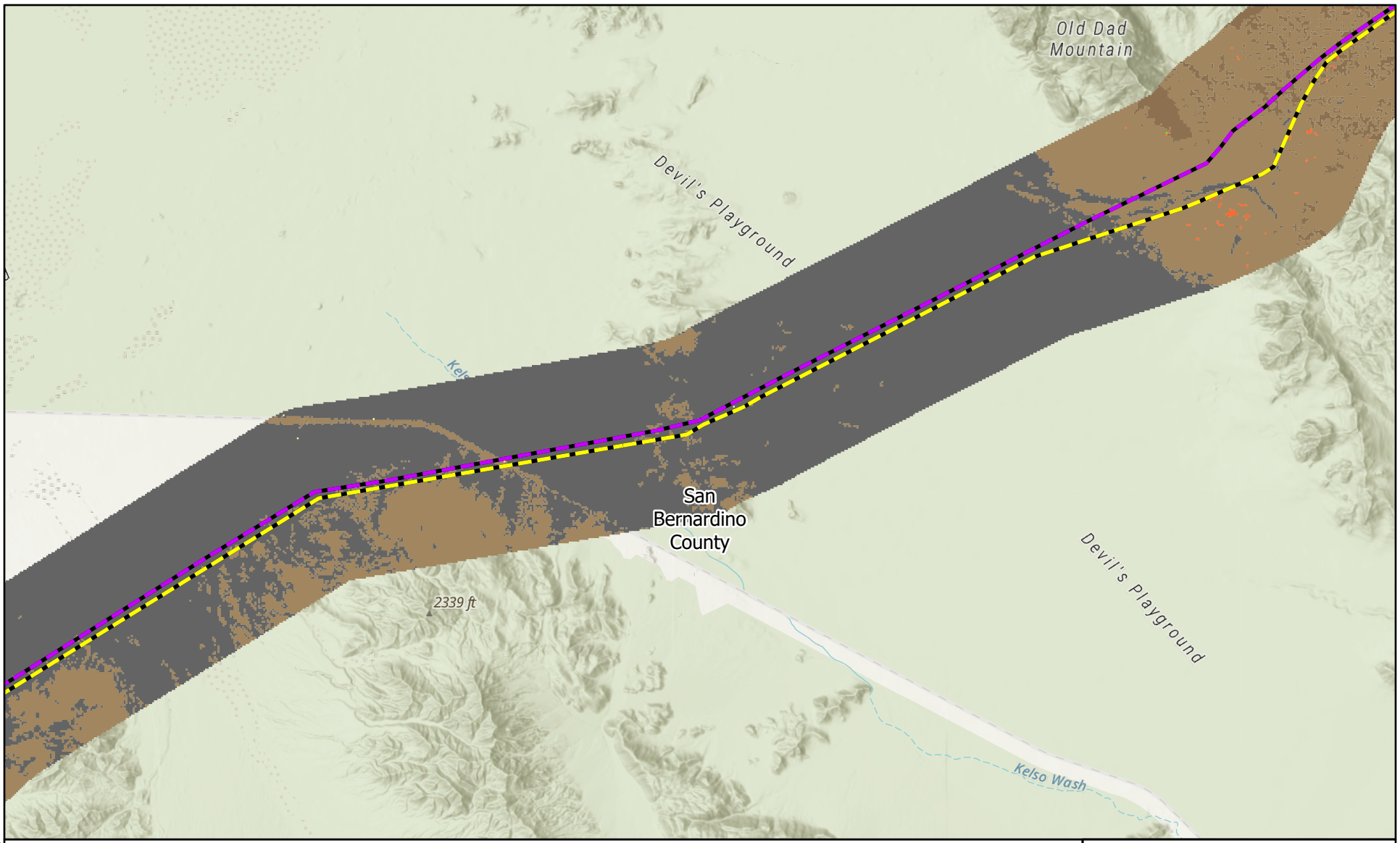

Legend

- Substations
- Segment 4
- Segment 3
- County Boundary

NOTES:
Sources: https://landfire.gov/viewer/

0 1 2
Miles

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ELDORADO-PISGAH-LUGO 220 kV PROJECT

USDA FIRE EFFECTS INFORMATION SYSTEM VEGETATION TYPES

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.20-7

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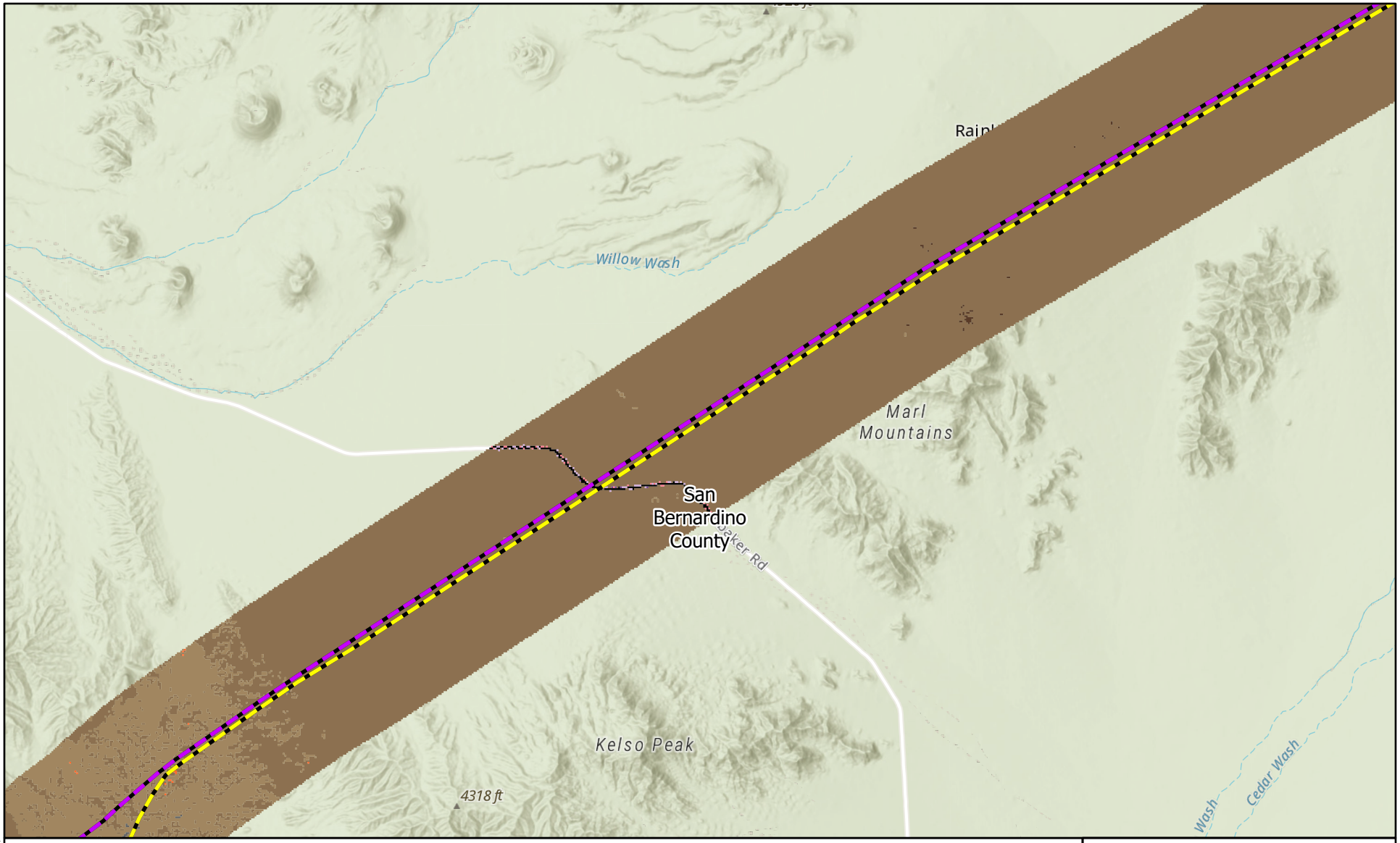

Legend

- Substations
- Segment 4
- Segment 3
- County Boundary

NOTES:
Sources: https://landfire.gov/viewer/

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0 1 2
Miles

ELDORADO-PISGAH-LUGO 220 kV PROJECT

USDA FIRE EFFECTS INFORMATION SYSTEM VEGETATION TYPES

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.20-7

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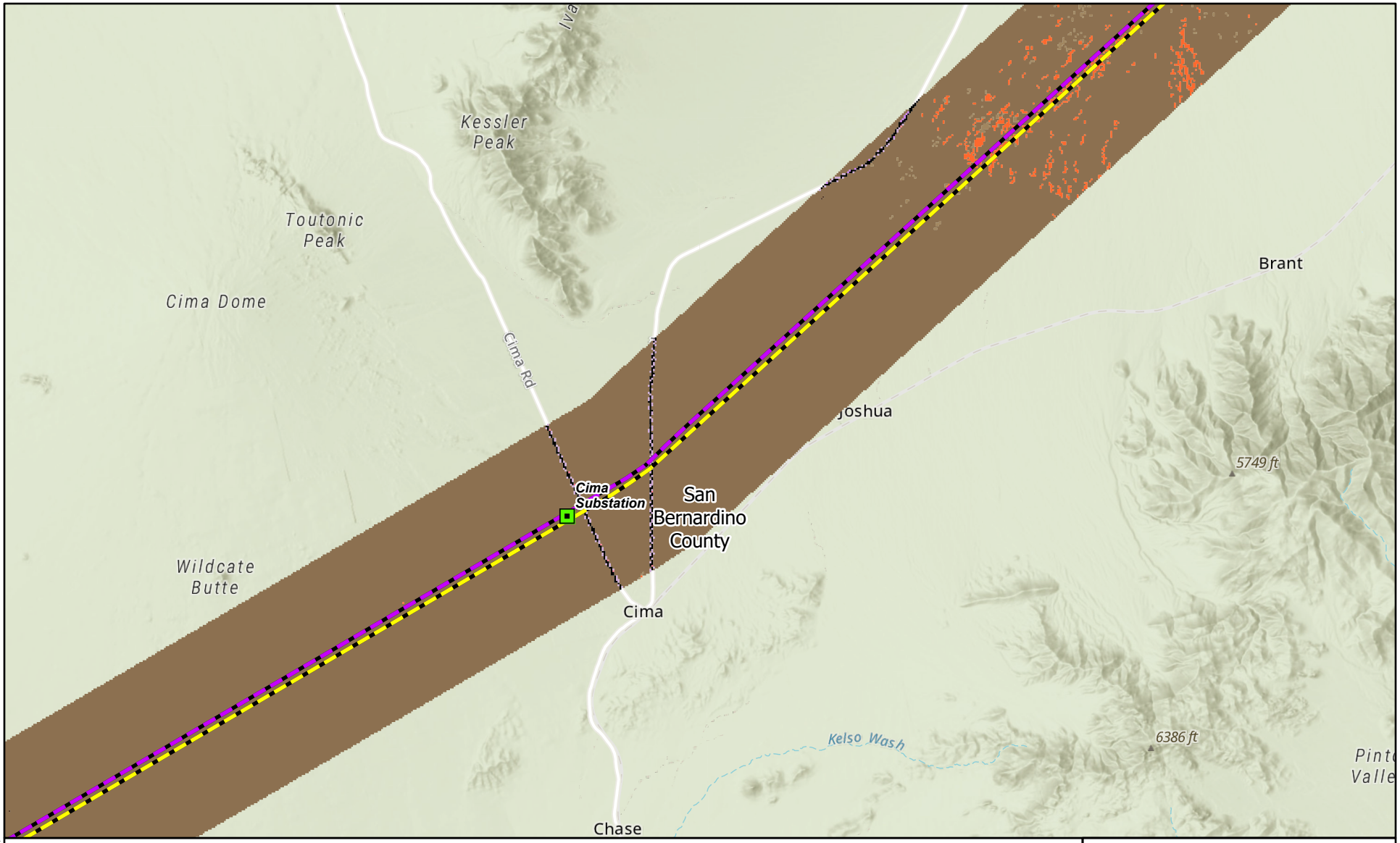

Legend

- Substations
- Segment 4
- Segment 3
- County Boundary

NOTES:
Sources: https://landfire.gov/viewer/

0 1 2
Miles

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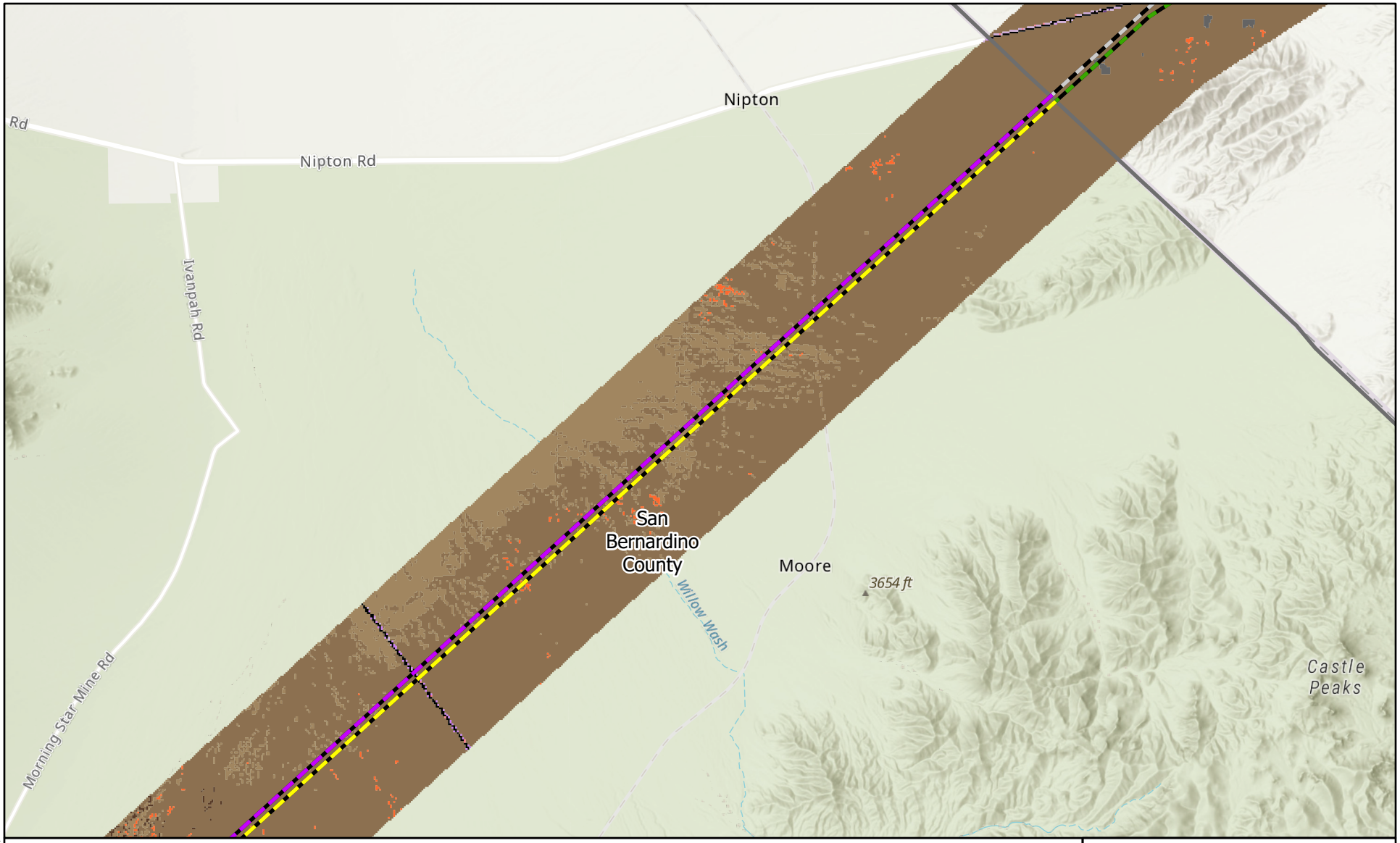
ELDORADO-PISGAH-LUGO 220 kV PROJECT

USDA FIRE EFFECTS INFORMATION SYSTEM VEGETATION TYPES

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.20-7

Folder: T:_ENV\SCE\SCE_TLLR\ArcGIS_Pro\



Legend

- Substations
- Segment 3
- Segment 4
- Segment 5
- Segment 6
- County Boundary

NOTES:
Sources: https://landfire.gov/viewer/

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Miles

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ELDORADO-PISGAH-LUGO 220 kV PROJECT

USDA FIRE EFFECTS INFORMATION SYSTEM VEGETATION TYPES

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.20-7

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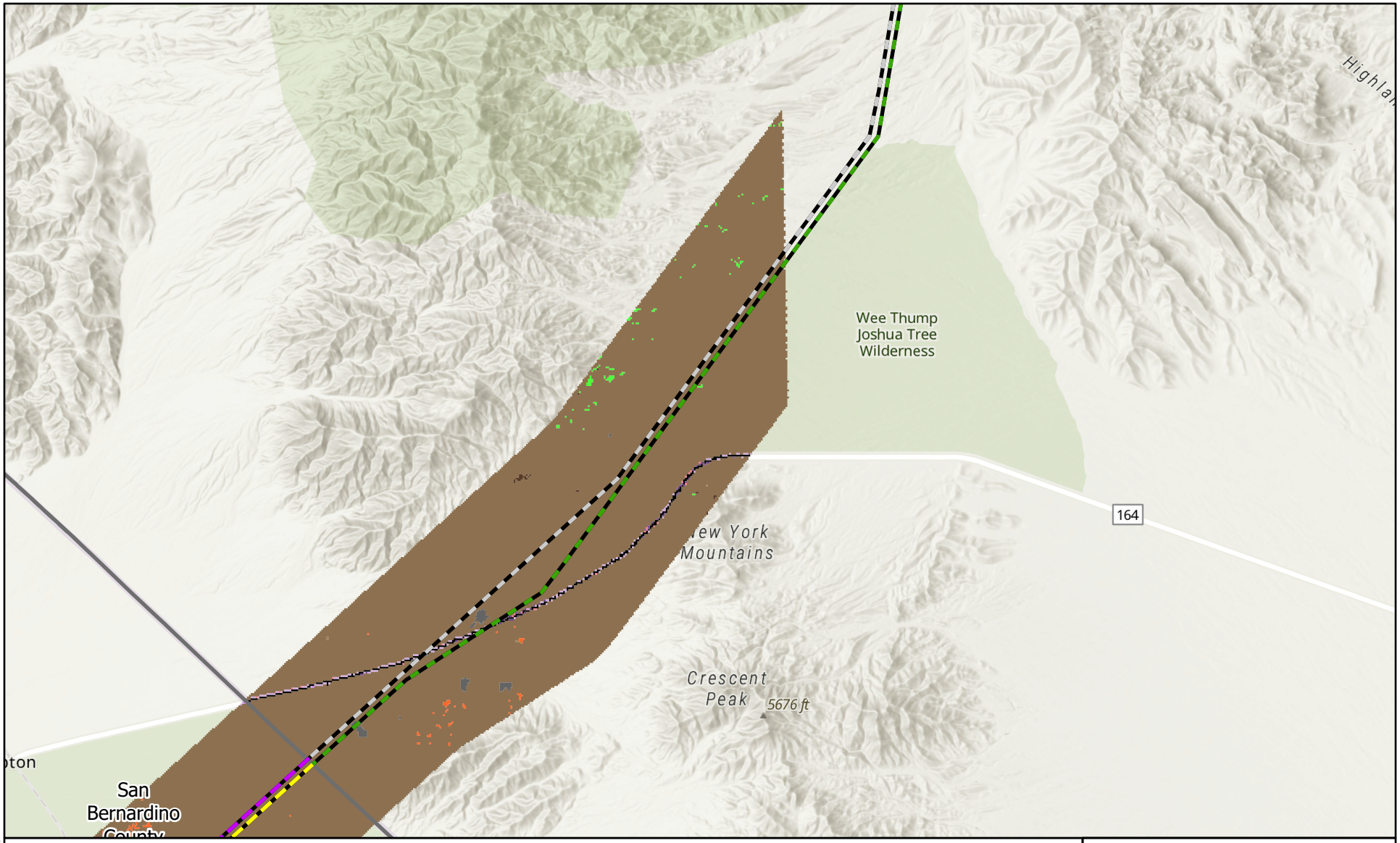

Folder: T:_ENV\SCE\SCE_TLLR\ArcGIS_Pro\

Legend

- Substations
- Segment 3
- Segment 4
- Segment 5
- Segment 6
- County Boundary

NOTES:
Sources: https://landfire.gov/viewer/

Page 11 of 13

0 1 2
Miles

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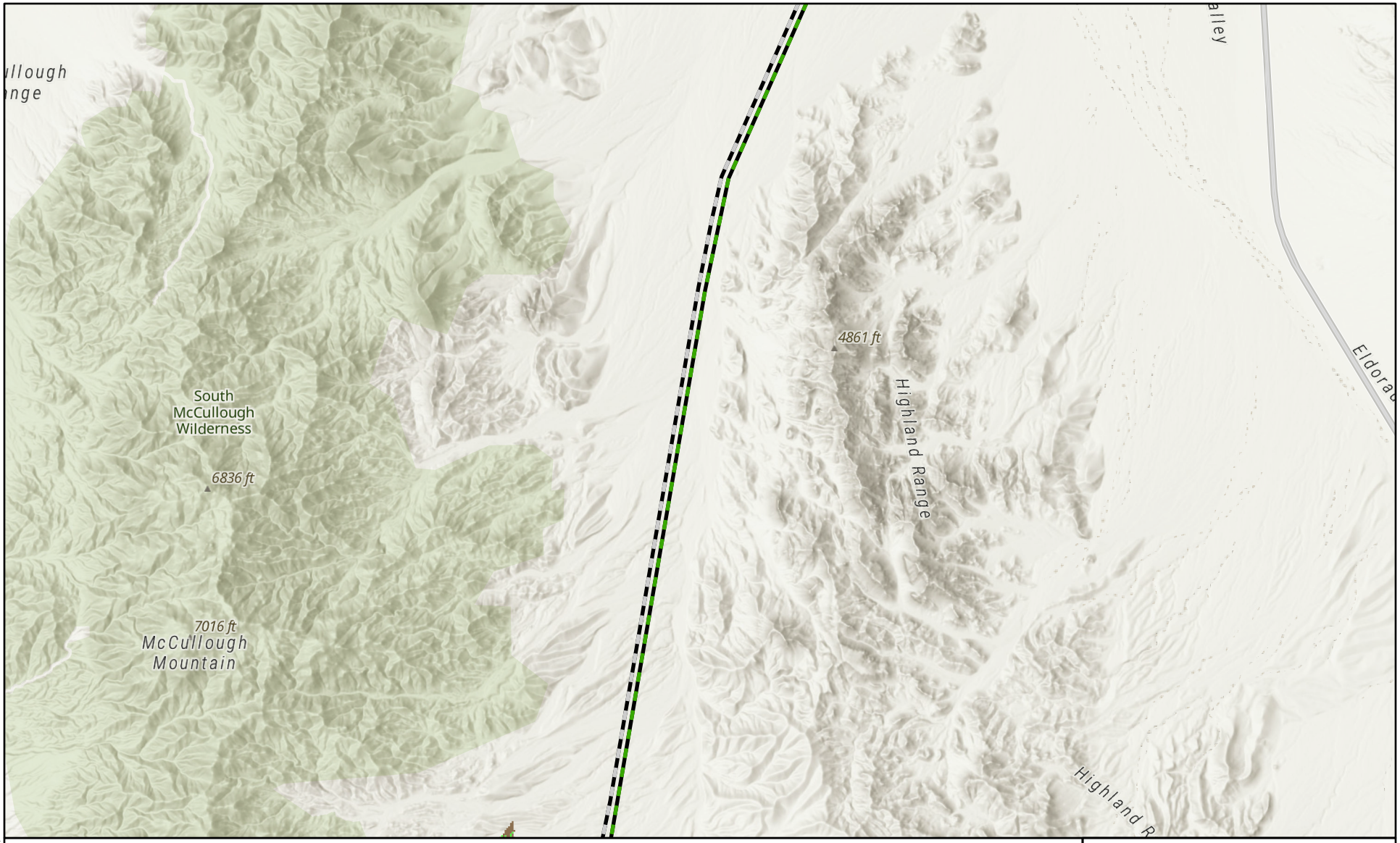
ELDORADO-PISGAH-LUGO 220 kV PROJECT

USDA FIRE EFFECTS INFORMATION SYSTEM VEGETATION TYPES

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.20-7



Legend

- Substations
- Segment 6
- Segment 5
- County Boundary

NOTES:
Sources: https://landfire.gov/viewer/

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Miles

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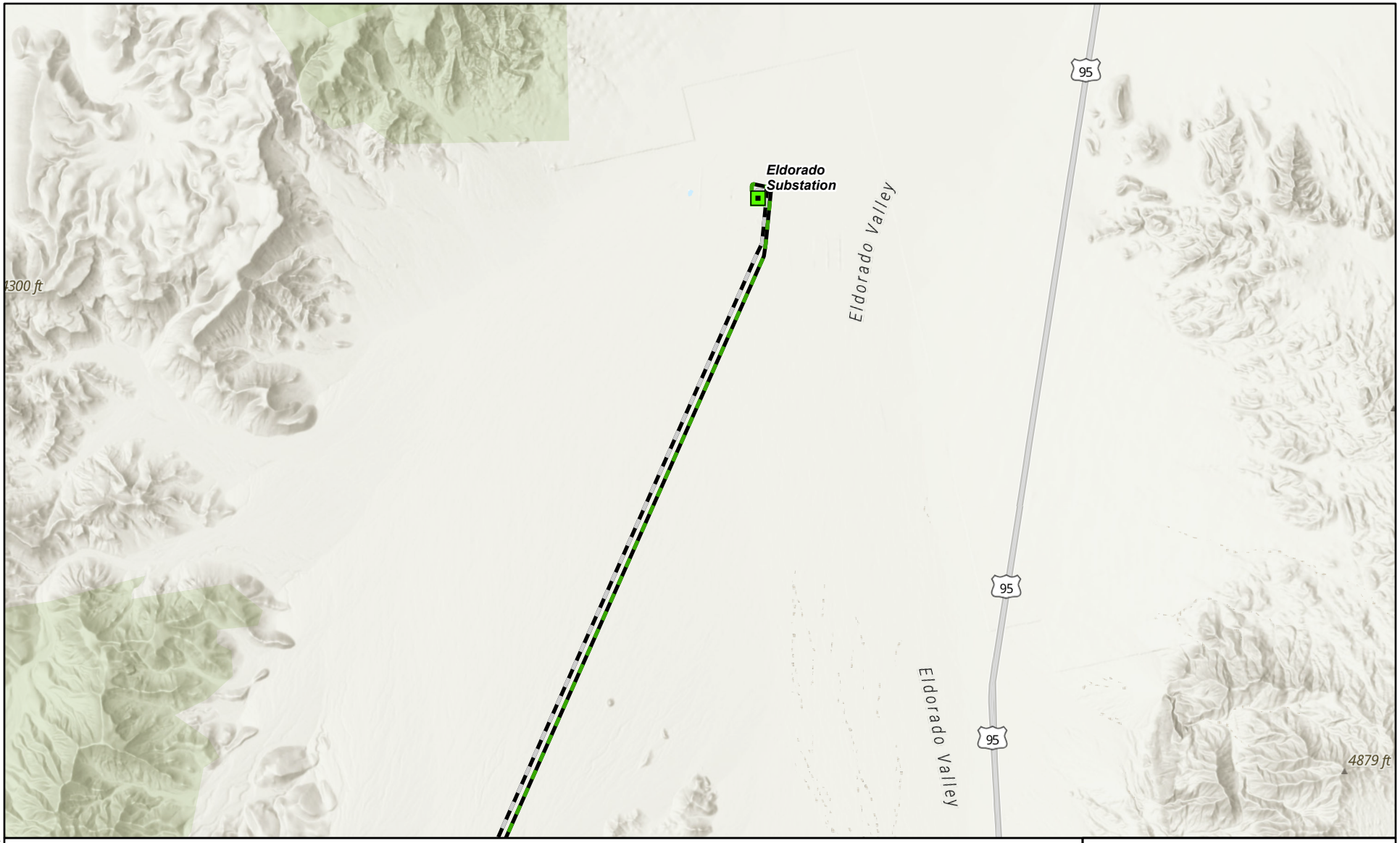
ELDORADO-PISGAH-LUGO 220 kV PROJECT

USDA FIRE EFFECTS INFORMATION SYSTEM VEGETATION TYPES

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.20-7

Folder: T:_ENV\SCE\SCE_TLLR\ArcGIS_Pro\



Legend

- Substations
- Segment 6
- Segment 5
- County Boundary

NOTES:
Sources: https://landfire.gov/viewer/

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Miles

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ELDORADO-PISGAH-LUGO 220 kV PROJECT

USDA FIRE EFFECTS INFORMATION SYSTEM VEGETATION TYPES

SOUTHERN CALIFORNIA EDISON An EDISON INTERNATIONAL Company
ARCADIS

FIGURE 5.20-7

Folder: T:_ENV\SCE\SCE_TLLR\ArcGIS_Pro\

5.21 Mandatory Findings of Significance

This Section of the PEA provides an analysis of the mandatory findings of significance associated with construction of the EPL Project. In accordance with the CEQA Guidelines Section 15064 (a through h), this PEA section provides substantial evidence that is used to support the determination of whether the EPL Project will result in significant environmental impacts.

5.21.1 Impact Assessment for Mandatory Findings of Significance

5.21.1.1 Significance Criteria

Appendix G of the CEQA Guidelines provides the criteria used in determining whether project related impacts will be significant. Impacts resulting from the EPL Project could be considered significant if they have the potential to create substantial impacts when the following questions are considered. Would the EPL Project:

- Have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?
- Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?
- Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

5.21.1.2 Impact Analysis

5.21.1.2.1 Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Less than Significant Impact. The EPL Project would not degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major period of California history or prehistory.

The EPL Project would involve short-term construction activities, consisting of replacing existing structures with replacement structures located proximate to the existing structures. When constructed as described in Chapter 3, and through compliance with applicable regulations designed to protect the environment, construction would not substantially degrade the quality of the environment. The EPL Project would result in less than significant impacts to existing habitats, wetlands, and waterways. Therefore, the EPL Project would not substantially reduce the habitat of a fish or wildlife species.

The EPL Project would not have substantial impacts on wildlife habitat or designated or proposed critical habitat and would have no impacts on wildlife refuges. It would not require substantial clearing of

vegetation. Any placement of fill in waterways would comply with federal and state wetlands and waterways regulations, and no discharges of domestic or industrial effluent would occur that could threaten the survival of a species. The EPL Project's impacts on biological resources would be less than significant when constructed as described in Chapter 3. Therefore, the EPL Project would not cause a fish or wildlife population to drop below self-sustaining level or threaten to eliminate a plant or animal community.

The EPL Project would have less than significant impacts on special-status plants and animals. It would not involve construction of a highway, levee, or other major infrastructure that could restrict the range of a species. Therefore, the EPL Project would not restrict the range of a rare or endangered plant or animal and any biological impacts would be less than significant.

The EPL Project would not eliminate important examples of the major periods of California history or prehistory. The EPL Project would have no impacts on built-environment historic resources. No specific work or modifications are proposed at NRHP/CRHR-listed or eligible public roads, railroads, and aqueducts in the APE/API. Specific work or modifications proposed at NRHP/CRHR-listed or eligible electrical transmission lines and substations include reconductoring, installing a small number of inter-set structures, and replacing/installing necessary associated hardware, which is considered exempt from historical resources impacts and historic property effects pursuant to CEQA and NHPA Section 106, because these construction activities would not remove significant character-defining features dating to the line's established period of significance. These changes are considered replacement in-kind and will occur within the existing transmission corridor.

The EPL Project, as described in Chapter 3, would avoid most of the prehistoric and/or historic archaeological resources within the Direct and Visual APEs that are eligible or remain unevaluated for the NRHP and/or CRHR. Avoidance is recommended for the one unevaluated resource that is within the ADI of the EPL Project components. All resources that remain unevaluated for the NRHP and CRHR will be treated as eligible and avoided. No further archaeological work is needed for resources that have been recommended or previously determined ineligible for the NRHP and/or CRHR. All resources that remain unevaluated for the NRHP and CRHR would be treated as eligible and avoided. If avoidance is not feasible, these resources would be subject to additional research, including archival research and/or subsurface testing, as relevant, to support NRHP and CRHR evaluation. These measures would reduce the impacts and effects on archaeological resources to less than significant. Therefore, the EPL Project would have no impacts on built-environment historic resources, and impacts to prehistoric and historic unevaluated or CRHR and/or NRHP-eligible resources would be less than significant.

5.21.1.2.2 Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

Less than Significant Impact. As discussed in Section 7.1.3, the EPL Project, with the implementation of the measures contained in the Project Description, would not result in any cumulatively considerable impacts to any environmental resource category. Therefore, with implementation of these measures, the EPL Project would not contribute to any cumulatively considerable impact.

5.21.1.2.3 Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Less than Significant Impact. The EPL Project would not result in environmental impacts that would have substantial direct or indirect effects on human beings, including noise, traffic, or potential for

hazards from hazardous materials or accidents in close proximity to residential or recreational areas. As presented in Chapter 5, the direct and indirect impacts of the EPL Project's construction would be less than significant for all resource areas. Therefore, the EPL Project would not cause a substantial adverse direct or indirect effect on human beings, and impacts would be less than significant.

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