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Description:	This section describes cultural resources, inclusive of archaeological, built environment, and tribal cultural resources, in and near the Project, and the potential effects the Project may have on these resources. The details provided are based on the Project's Cultural Resources Technical Report prepared by Rincon Consultants, Inc. The Cultural Resources Technical Report is included as Confidential Appendix F.
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5.1 Cultural Resources and Tribal Cultural Resources

This section describes cultural resources, inclusive of archaeological, built environment, and tribal cultural resources, in and near the Vaca Dixon Power Center Project (Project), and the potential effects the Project may have on these resources. The details provided herein are based on the Vaca Dixon Power Center Project Cultural Resources Technical Report prepared by Rincon Consultants, Inc. (Rincon; 2025). The Cultural Resources Technical Report is included as Confidential Appendix F.

Section 5.1.1 describes the environmental setting, including the Cultural Resources Study Area (CRSA) utilized for this study, an overview of the cultural chronology and ethnographic setting, and results of the resources inventory including the results of archival research, pedestrian surveys, and Native American consultation conducted on behalf of the Project both in and near the Project Site. Section 5.1.2 provides an overview of the regulatory setting related to cultural resources. Section 5.1.3 presents an environmental analysis of the Project, including standards of significance, potential impacts of Project construction and operation (including maintenance) on cultural resources, as well as mitigation measures that should be considered during Project construction and operation. Section 5.1.4 evaluates any potential cumulative impacts on cultural resources in the Project vicinity. Section 5.1.5 describes the laws, ordinances, regulations, and standards (LORS) that apply to the Project. Section 5.1.6 identifies regulatory agency contacts, and Section 5.1.7 describes permits required for the Project related to cultural resources. Finally, a full compilation of the references used to prepare this section is provided in Section 5.1.8.

5.1.1 Environmental Setting

The following subsections provide an overview of the existing environmental setting for cultural resources and tribal cultural resources in the Project Site.

The Project Site lies within flat bottomland of the Sacramento Valley approximately 70 feet above mean sea level. The nearest natural water source is Gibson Canyon Creek, which trends from west to southeast in the vicinity, approximately 0.3 mile to the north-northeast of the Project Site. The environmental context of the Project Site and the general vicinity today bears little resemblance to that of 200 years ago due to significant human alterations of the land from industrial development, farming, and channelization of creeks (including Gibson Canyon Creek) and sloughs. The BESS Project Site includes an active irrigated agricultural parcel containing an orchard, which is located within municipal boundary of the City of Vacaville. This parcel, where the proposed BESS facilities are located, is located on the southeast side of Interstate 80 (I-80). The BESS site is surrounded by irrigated agricultural fields to the east and south. Additionally, a transmission line corridor borders the east side of the parcel, running through agricultural areas to the south. The Project's gen-tie lines extend northwest from the BESS site, over I-80 and into a primarily vacant, undeveloped field covered with non-native annual grasses on the western portion of the PG&E Vaca-Dixon Substation property. This vacant site is adjacent to the existing Vaca Dixon Peaker Plant (VDPP). The gen-tie lines are proposed to run parallel to the eastern side of the existing, paved access road for the VDPP and then extend to the electrical connection points at the VDPP and the PG&E Vaca-Dixon Substation.

Land uses surrounding the BESS Project Area include I-80 (Caltrans jurisdiction) to the north and west, a PG&E transmission line easement and agricultural land within the City of Vacaville to the east, and Kilkenny Road and agricultural land within Solano County to the south. The proposed gen-tie facility locations on the PG&E parcel (APN 0133-060-070) are designated by the Solano County

General Plan as Public/Quasi-Public land, including existing PG&E facilities associated with the PG&E Vaca-Dixon Substation to the east. Adjacent land uses to the gen-tie routes on the PG&E parcel, which are all in Solano County, include a commercial auto body shop and pond to southwest, designated as Urban Commercial land; and undeveloped land and backyards of residential lots on Mills Lane to the west and northwest, designated as Urban Residential, Public Open Space, and Public/Institutional lands.

5.1.1.1 Cultural Resources Study Area

Per the California Energy Commission's (CEC's) recommendation, the CRSA for this study was defined to include the Project Site and properties within 0.5 mile of all Project boundaries to the south of I-80 (rural) and properties within one parcel of all Project boundaries to the north of I-80 (suburban) as shown in Figure 5.1-1. The buffers were selected based on the presence of agricultural areas and some residential subdivisions in the Project vicinity to the south of I-80, while residential subdivisions and commercial and industrial development were found to be more prevalent to the north of I-80.

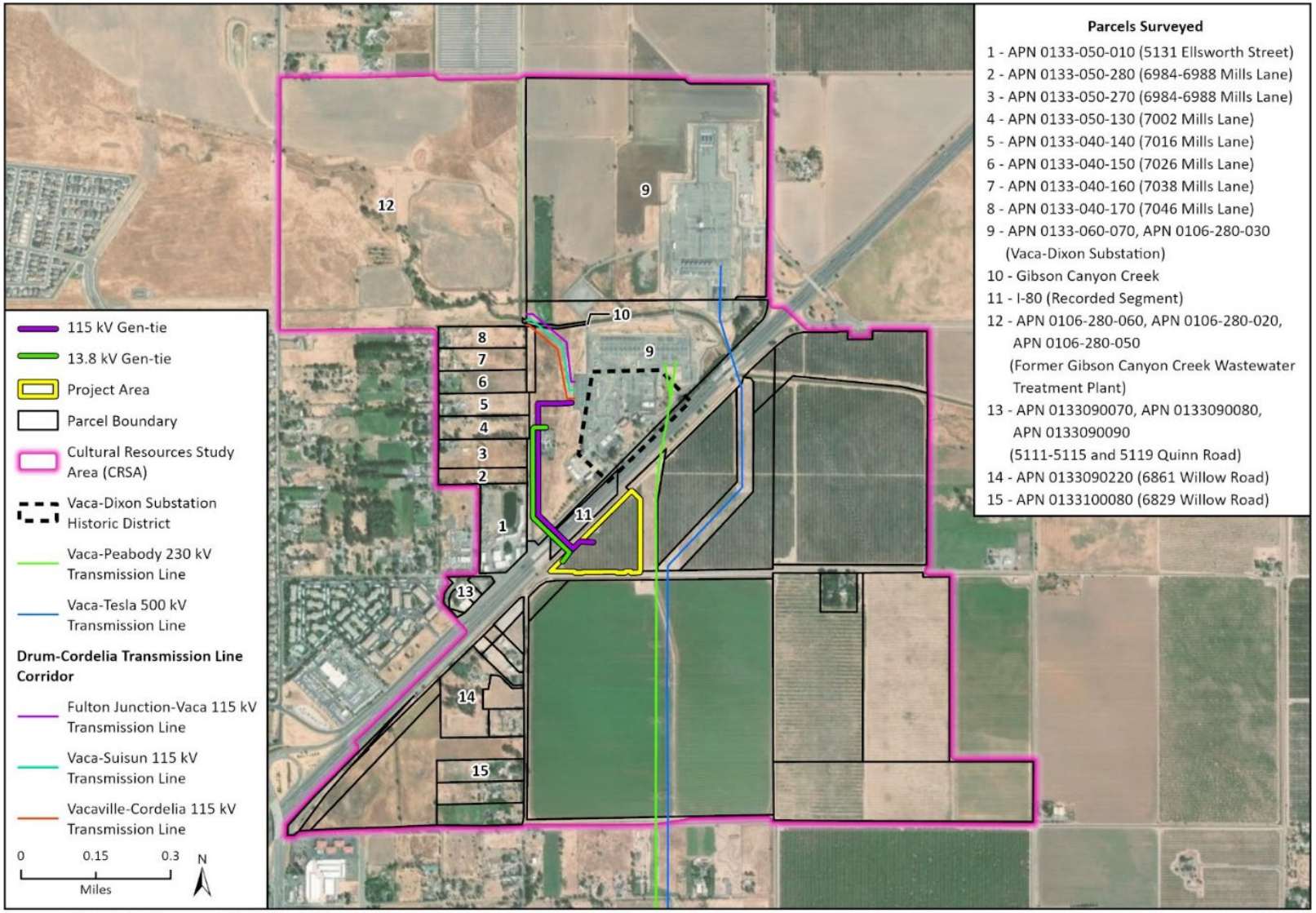
5.1.1.2 Cultural Chronology

The Project Site is located within the Central Valley archaeological region, as defined by Moratto (1984). The Central Valley has been described as one of the largest intermontane basins extending 650 kilometers from the Siskiyou Mountains to the Tehachapi Mountains (Rosenthal et al. 2007). The Project area specifically lies within the Sacramento Valley subregion, which spans from the Sacramento River Delta to the Siskiyou Mountains. No single chronological framework covers the entirety of the Central Valley, but California prehistory is generally divided into three broad time periods: the Paleoindian Period (circa 11,550 to 8550 Before Common Era [BCE]), the Archaic Period (8550 BCE to CE 1100) and the Emergent Occupation Period (CE 1000 to European Contact) (Fredrickson 1973, 1974), which has been updated and adjusted by Rosenthal et al. (2007) to further separate the Archaic Period into Lower (8550 BCE to 5550 BCE), Middle (5550 BCE to 550 BCE), and Upper (550 BCE to CE 1100). The prehistoric chronological sequence for the Central Valley Sacramento Valley subregion presented below is based on Rosenthal et al. (2007) and Moratto (1984).

Paleoindian Period (11,550 to 8550 BCE)

Little is currently known about the Paleoindian Period in the Sacramento Valley subregion. The earliest known sites dating to this period are located in the Southern San Joaquin Valley at Tulare Lake (Garfinkel 2015). Moratto (1984) has refuted most evidence dating occupation sites to the Paleoindian Period based on inaccurate or poorly executed radiocarbon dating; however, later uncalibrated dates at the Witt Site (CA-KIN-32) aged toward the end of the last ice age, between 9370 and 13,802 BCE (Garfinkel 2015). This period is represented by fluted projectile points similar to Clovis points found at sites near Tracy Lake and the Tulare Lake Basin, associated stone tools such as leaf-shaped knives and ovate domed and elongate keeled scrapers, and crescents that may represent subsistence focus on hunting of extinct megafauna (Garfinkel 2015). Along with fluted projectile points, concave base points have been discovered along the Tulare Lake shoreline, which is known to have been occupied during the Late Pleistocene (Rosenthal et al. 2007, Garfinkel 2015).

Figure 5.1-1 Archaeological and Architectural History Survey Coverage Overview



Lower Archaic (8550 to 5550 BCE)

Climate change at the end of the Pleistocene caused significant periods of alluvial deposition beginning around 9050 BCE. These new alluvial deposits created a clear stratigraphic boundary between the Late Pleistocene and Holocene sediments. The Lower Archaic, like the Paleoindian Period, is represented only by limited isolated finds. Only one Lower Archaic site (KER-116) has been identified in the Central Valley proper, outside of the Sacramento Valley subregion (Rosenthal et al. 2007).

Typical Lower Archaic artifacts include flaked stone crescents and stemmed projectile points, mostly along the shoreline of Tulare Lake. The identification of projectile points and a diverse faunal assemblage at KER-116 point to hunting being an important subsistence activity (Fredrickson and Grossman 1977). One isolated flaked stone crescent has been identified in the Sacramento Valley on an alluvial fan west of Orland (Rosenthal et al. 2007).

Middle Archaic (5550 to 550 BCE)

The Middle Archaic began with substantial climate change to much warmer, drier conditions. New wetlands created new habitats, and rising sea levels led to the creation of the Sacramento-San Joaquin Delta, creating new deposits. Fans and floodplains stabilized after an initial period of deposition in 5550 BCE. While archaeological deposits dating to the Middle Archaic are rare in the Central Valley proper due to these geomorphic changes, the Sacramento Valley subregion contains an increase in sites dating to the Middle Archaic, including CA-BUT-233, CA-CAL-236, CA-CCO-18/548, CA-COL-247, and CA-SAC-107 (Rosenthal et al. 2007). The oldest well-dated archaeological deposits in Solano County, CA-SOL-315 and CA-SOL-391 located in Green Valley, date to the Middle Archaic (Hildebrandt et al. 2012).

The Middle Archaic record has revealed a pattern of organized subsistence strategies and increased residential stability. The archetypal pattern of the Middle Archaic in the foothills of the Central Valley has been identified as the Windmiller Pattern, represented by extended burials oriented to the west and a sophisticated material culture. However, some representative sites in the foothills of the Sacramento Valley region exhibit closer association with the Mendocino Pattern, an upland adaptive strategy featuring high-residential mobility (Rosenthal et al. 2007). This is the case with CA-SOL-315 in Green Valley, within the vicinity of the Project area.

During this time, the mortar and pestle became more widespread, suggesting a shift toward more intensive subsistence practices. Fishing technologies, such as bone gorges, hooks, and spears, also appeared during the Middle Archaic, suggesting a new focus on fishing (Rosenthal et al. 2007). While many other regions of California had an intensive reliance on the acorn at this time, archaeobotanical analysis for the Sacramento Valley subregion suggests a lower ratio of acorn to small seeds during this time (Wohlgemuth 1996, 2016).

Several other technologies became apparent during this time. Baked-clay impressions of twined basketry, pottery, and other baked clay objects have been found at several sites. Personal adornment items also become more frequent. Exchange with outside groups is evidenced by the presence of obsidian, shell beads and ornaments (Moratto 1984, Rosenthal et al. 2007, Burns et al. 2012). Trade also seemed to be focused on utilitarian items such as obsidian or finished obsidian tools from at least five separate sources (Moratto 1984).

Upper Archaic (550 BCE to CE 1100)

The Upper Archaic began with the onset of the Late Holocene, marked by a cooler, wetter climate. Several archaeological sites dating to this period have been recorded in the Sacramento Valley, including in Green Valley, Vaca Valley, and near Dixon (Hildebrandt et al. 2012). The environmental conditions of the Upper Archaic were characterized by the return of lakes that had disappeared during the Middle Archaic and a renewed fan and floodplain deposition. The Upper Archaic is better represented in the archaeological record than in earlier periods. Cultural diversity was more pronounced and is marked by contrasting material cultures throughout the valley (Rosenthal et al. 2007). The Sacramento Valley subregion exhibited the distinctive Shasta Complex in the larger Central Valley Augustine Pattern, characterized by settlements near streams, semisubterranean dwellings, a hunting-gathering subsistence, acorn processing in hopper mortars, and paucity of charmstones (Moratto 1984).

During this period, numerous specialized technologies were developed such as bone tools, and implements, manufactured goods such as Olivella and *Haliotis* beads and ornaments, well-made ceremonial blades, and ground-stone plummets. Burials were often in flexed positions, typically on the side or supine, and could include cremation (Moratto 1984, Rosenthal et al. 2007).

Upper Archaic Period economies varied by region throughout the Central Valley. Economies were primarily focused on seasonal resources such as acorns, salmon, shellfish, rabbits, and deer (Rosenthal et al. 2007). The Sacramento Valley subregion saw an intense increase in acorn reliance during this time (Wohlgemuth 1996, 2016).

Emergent Occupation Period (CE 1000 to Contact)

The stable climatic conditions of the Upper Archaic continued into the Emergent Occupation Period. The Emergent Occupation Period is associated with two cultural patterns: in the southern Sacramento Valley region, the Augustine Pattern is more prevalent, while the Sweetwater and Shasta Complexes are prevalent in the northern Sacramento Valley. After CE 1000, many of the technologies observed during the Archaic disappeared to be replaced by cultural traditions recorded at European contact. The bow and arrow replaced the atlatl as the preferred hunting method sometime between CE 1000 and 1300 (Rosenthal et al. 2007).

Increased social complexity is evidenced by increased variation in burial types and offerings and larger, year-round residential communities, as seen in CA-SOL-30 recorded in Lagoon Valley, in Vacaville. Grave offerings such as shell beads, ornaments, and ritually “killed” mortars and pestles are often found in burials. Pottery was frequently obtained through trade with groups living in the foothills to the east.

As with the Archaic Period, Emergent Occupation Period economies varied geographically. Archaeological sites such as CA-SOL-30 and CA-SOL-397 included clamshell disk blanks and other evidence of clam shell disk production (Rosenthal et al. 2007). In addition, fishing and plant harvesting increased in importance throughout the Central Valley with a decrease in acorn reliance and an increase in processing of small seeds such as grass seeds, as seen in the assemblage of CA-SOL-356 in Green Valley, within the vicinity of the Project Site (Rosenthal et al. 2007, Wohlgemuth 2016). In the Sacramento Valley, large populations settled along the Sacramento River where fish weirs were constructed (Rosenthal et al. 2007). Most Emergent Occupation Period residential sites contain diverse assemblages of mammal and bird remains and large amounts of fish bone. Approximately 1,000 years ago, the mortar and pestle become the dominant tool type and small seeds increased in archaeological deposits over time (Rosenthal et al. 2007).

5.1.1.3 Ethnographic Setting

The Project Site is located in the traditional tribal territory of the ethnographic Patwin, members of the larger Wintun Tribe. Patwin territory extends from Clear Lake down to the San Pablo and Suisun bays. The Patwin may be further separated into River Patwin along the Sacramento River, as well as in the Sacramento and Suisun valleys towards the San Pablo and Suisun bays, and the Hill Patwin along the northern Coast Ranges closer to Clear Lake Basin (Elliott 2011). Patwin language is a subgroup of the Penutian language family along with Wintun (Johnson 1978). Historically, the southern Patwin were distinguished from the northern Wintun based on the linguistically distinct words for people: *Win-tun* or *Win-tu* in the north and *Pat-win* in the south (Kroeber 1925: 355). For this discussion, Patwin refers to both Patwin and Wintun peoples.

Among the ethnographic Patwin, political organization consists of small tribelets and several satellite settlements. A male chief would head each tribelet and direct activities. Their main purpose was to govern ceremonial and economic activities of the village. His administration included tree grove and fishing ownership, how food would be distributed among the villagers, and what ceremonies would be held and who would be invited to join (McKern 1922, Johnson 1978). This position typically passed down patrilineally. Yet, the village could determine a chief to be incompetent and village elders would then elect a new chief based on qualifications (McKern 1922).

The ethnographic Patwin family unit had three levels. The first is the paternal family, which includes the extended family following male blood relations. The second is the family social group that dictated marital matrilocality, with the husband moving to the area of his wife. On the third level, the household of the nuclear family would situate in proximity of the family social group. Other types of family-like units would take part in specific activities. Paternal families participated in one of four practices that passed down secret medicines and charms. Trade families engaged in producing or consolidating resources, such as hunted animals or musical instruments, for distribution. Shamanistic families used supernatural powers to influence the spirits. Official families held one individual that served in an official capacity, such as ceremonial song leader or *hesi* dance fire tender (McKern 1922). Additionally, a series of ceremonial dances took place from October to May related to the Kuksu Cult. These dances would take place in a small and secret ceremonial dance hall with an earth-covered roof (Kroeber 1925).

Early ethnographers observed Patwin residential structures were typically elliptical or circular shaped and earth-covered or semi-subterranean. The earth covering was imported from outside the villages. Villages consisted of family homes, a ceremonial dance house, menstrual hut, and a sweat lodge.

Ethnographic Patwin subsistence practices centered on the use of acorns and other seeds as a primary food source. River Patwin would process these foods with wooden log mortars, while Hill Patwin preferred flat stone slab-and-basket hopper mortars (Elliott 2011). Both groups engaged in the hunting of deer, tule elk, antelope, bear, turtles, and various species of waterfowl. Hunting was done typically with a sinew-backed bow and arrow. Fishing was a particularly important activity for the Patwin, using gates and pens to catch salmon and sturgeon, while pike, steelhead, trout, and smaller salmon were caught with nets. Additionally, tobacco was collected from along the river and dried for smoking but not cultivated (Johnson 1978).

The ethnographic Patwin made both twined and coiled basketry, usually from willow and redbud. Baskets were an important tool in their daily lives for transporting, preparing, and storing foods and burial remains. They used animal hides for bedding, floor mats, skirts, burial robes, and tobacco

sacks. Tule balsa rafts were crafted and used to navigate rivers. Bone, mussel shell, and stone tools were used as knives (Johnson 1978).

Following European contact, starting with the Spanish in the early 1800s, southern Patwin groups had been forcibly relocated to missions and, later, rancherias up and into the 1900s. By 1972, the Bureau of Indian Affairs census listed only 11 Patwin individuals (Reynolds 2009). Today, individuals of Patwin descent are affiliated with three federally recognized tribes, and in 2014, the Yocha Dehe Wintun Nation, Kletsel Dehe Band of Wintun Indians, and Cachil Dehe Band of Wintun Indians signed a historic document, adopting many of the cultural resource protection principles found in the United Nations Declaration on the Rights of Indigenous People.

5.1.1.4 Post-Contact and Historic Period Setting

Post-contact history for the state of California is generally divided into three periods: the Spanish Period (1769 to 1822), Mexican Period (1822 to 1848), and American Period (1848 to present). Although Spanish, Russian, and British explorers visited the area for brief periods between 1529 and 1769, the Spanish Period in California begins with the establishment in 1769 of a settlement at San Diego and the founding of Mission San Diego de Alcalá, the first of 21 missions constructed between 1769 and 1823. Independence from Spain in 1821 marks the beginning of the Mexican Period, and the signing of the Treaty of Guadalupe Hidalgo in 1848, ending the Mexican-American War, signals the beginning of the American Period when California became a territory of the United States.

Spanish Period (1769 to 1822)

Spanish explorers made sailing expeditions along the coast of California between the mid-1500s and mid-1700s. Juan Rodriguez Cabrillo in 1542 led the first European expedition to observe what was known by the Spanish as Alta (upper) California. For more than 200 years, Cabrillo and other Spanish, Portuguese, British, and Russian explorers sailed the Alta California coast and made limited inland expeditions, but they did not establish permanent settlements (Bean 1968, Rolle 2003). The Spanish crown laid claim to Alta California based on the surveys conducted by Cabríllo and Vizcaíno (Bancroft 1885, Gumprecht 1999).

By the eighteenth century, Spain developed a three-pronged approach to secure its hold on the territory and counter against other foreign explorers. The Spanish established military forts known as presidios, as well as missions and pueblos (towns) throughout Alta California. The 1769 overland expedition by Captain Gaspár de Portolá marks the beginning of California's historic period, occurring just after the King of Spain installed the Franciscan Order to direct religious and colonization matters in assigned territories of the Americas. Portolá established the Presidio of San Diego as the first Spanish settlement in Alta California in 1769, and the closest mission to the Project area was Mission San Francisco Solano established in Sonoma, California in 1823 (Draper 2003).

Construction of missions and associated presidios was a major emphasis during the Spanish Period in California to integrate the Native American population into Christianity and communal enterprise. Incentives were also provided to bring settlers to pueblos or towns; just three pueblos were established during the Spanish Period, only two of which were successful and remain as California cities (San José and Los Angeles).

Spain began making land grants in 1784, typically to retiring soldiers, although the grantees were only permitted to inhabit and work the land. The land titles technically remained property of the Spanish king (Livingston 1914). Between 1817 and 1848, six original land grants were issued for

what would become Solano County, including Rancho Suisun where the Project Site is located (Hoover et al. 2002).

Mexican Period (1822 to1848)

Several factors kept growth within Alta California to a minimum, including the threat of foreign invasion, political dissatisfaction, and unrest among the indigenous population. After more than a decade of intermittent rebellion and warfare, New Spain won independence from Spain in 1821. In 1822, the Mexican legislative body in California ended isolationist policies designed to protect the Spanish monopoly on trade, and decreed California ports open to foreign merchants (Dallas 1955).

Extensive land grants were established in the interior during the Mexican Period, in part to increase the population inland from the more settled coastal areas where the Spanish had first concentrated their colonization efforts. The secularization of the missions following Mexico's independence from Spain resulted in the subdivision of former mission lands and establishment of many additional ranchos. Commonly, former soldiers and well-connected Mexican families were the recipients of these land grants, which now included the title to the land. Within Solano County, the Mexican government continued to settle new areas to prevent loss to other countries. In 1835, General Mariano Guadalupe Vallejo settled what would become Fairfield and Suisun City south of the Project Site, as part of the Mexican government's effort to prevent Russian colonists from settling outside of the vicinity of Fort Ross.

During the supremacy of the ranchos (1834 to 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 nonnative 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 associated immunities.

American Period (1848 to Present)

The United States went to war with Mexico in 1846. The war ended in 1848 with the Treaty of Guadalupe Hidalgo, ushering California into its American Period (Kyle 2002). California officially became a state with the Compromise of 1850, which also designated Utah and New Mexico (with present-day Arizona) as United States territories (Waugh 2003). Horticulture and livestock, based primarily on cattle as the currency and staple of the rancho system, continued to dominate the California economy through the 1850s. The discovery of gold in the northern part of the state led to the Gold Rush beginning 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.

A severe drought in the 1860s decimated cattle herds and drastically affected many rancheros' source of income. In addition, property boundaries that were loosely established during the Mexican era led to disputes with new incoming settlers, problems with squatters, and lawsuits. Rancheros often were encumbered by debt and the cost of legal fees to defend their property. As a result, much of the rancho lands were sold or otherwise acquired by Americans. Most of these ranchos were subdivided into agricultural parcels or towns (Dumke 1944). In Solano County, Rancho Suisun was the first of the five Mexican grants in Solano County confirmed with patents issued by the United States government to Francisco Solano in 1845 (Hoover et al. 2002). Francisco Solano,

born Sam Yeto and later baptized as Chief Solano, was the principal chief of the Suisun Native American tribe and an extensive area extending from Petaluma Creek to the Sacramento River. Rancho Suisun was later purchased by General Mariano Vallejo, who sold the land to Archibald A. Ritchie in 1857.

European settlement in the Sacramento Valley remained relatively sparse until the discovery of gold in California in 1848. During the Gold Rush, the area that is now Solano County became an important trading and economic center, as merchants sold goods to gold seekers passing through the area en route to the goldfields. Farmers and ranchers in Solano County realized that a large profit could be made from selling crops and livestock to the miners. Larger towns grew up near the San Pablo and Suisun Bays, due to the convenience for shipping out these goods.

Solano County History

Named for Chief Solano, Solano County was established in 1850 as one of the 27 original counties of California (Fraser 1879). Twelve townships were created in the county beginning in 1850, to support the formation of voting districts (*The Times Herald* 1976, Limbaugh & Payne 1978). Of the 12 townships that were originally created early in the county's history, seven have been incorporated into cities, including: Benicia (1850 and 1851), Vallejo (1868), Suisun City (1868), Dixon (1878), Vacaville (1892), Rio Vista (1893), and Fairfield (1903) (Solano County 2023).

Grain farming and stock raising important in the early development of American-era California, especially in Solano County. As the settlement continued after statehood, agriculture diversified into other crops, including extensive acreage for orchards (Limbaugh & Payne 1978). Completed in 1868, the Central Pacific Railroad (later incorporated into Southern Pacific Railroad's network) trended southwest-northeast through Solano County, passing through areas to the east of the Project area (Thompson & West 1878). The railroad connected emerging populations centers in the southern portion of the county such as Vallejo, Fairfield, and Vacaville, to nearby communities including Elmira, located to the southeast (and outside) of the CRSA, as well as Dixon, Davis, and Sacramento further to the northeast. Prior to the development of U.S. Highway 40 and the Yolo Causeway between Davis and Sacramento between the 1910s and 1930s, the railroad remained the primary mover of freight and passengers between the San Francisco Bay Area and Sacramento (Limbaugh & Payne 1978, Caltrans 2016).

After World War I, the development of the Vaca-Dixon Substation in a rural area between Vacaville and Dixon, provided electrification to the growing populations in the Bay Area (Thompson 2022). The utility also emerged as a relatively large local employer. During World War II, Fairfield-Suisun Air Base (now Travis Air Force Base) established a military presence in the region and brought additional residents to the area. Like the substation, the base became a major regional employer. The decades following World War II brought an influx of new residents to the county and the area developed with single-family housing and new commercial developments, as Vacaville and nearby Suisun and Fairfield to its southeast grew around wartime industries and the development of subdivisions in a time of high housing demand.

The passing of the Federal-Aid Highway Act in 1956 led to widening and replacement of portions of U.S. 40 to create I-80. This included construction of a segment of I-80 that intersects the Project area between ca. 1961 and 1965 (Meyer 1961, Caltrans 2016, UCSB 1965). I-80 continued a trend of increasing regional access via roads, as the railroad's importance for freight and passenger traffic ebbed (Pivetti 1961). These patterns have persisted to the present day, as residential and commercial development adjacent to the I-80 corridor has gradually extended in the region to the

southwest of the Project area, while the immediate vicinity is primarily rural, with some low-density residential and limited commercial-industrial uses (UCSB 1987).

City of Vacaville

In 1841, Juan Manuel Vaca and Juan Felipe Peña of New Mexico traveled to California as part of the Workman-Rowland Party. Vaca and Peña were granted 44,000 acres of land in the Laguna Valley by the Mexican government in 1843, which following land ownership boundary disputes was confirmed as Ranch Los Putos in 1845 (Reiniche 2022). In the course of California entering statehood in 1850, Vaca and Peña sold portions of their rancho to several American pioneers, including Vaca's sale of one square league (or roughly 9 square miles) to land agent William McDaniel. The sale required that one square mile (640 acres) of McDaniel's land be reserved for the creation of a town bearing Vaca's name, and that Vaca received ownership of several lots within the town. McDaniel deeded half of his ownership to Lansing B. Mizner and they laid out a town site. McDaniel constructed the first building in Vacaville in 1850, with a rudimentary hotel and store built shortly thereafter (Munro-Fraser 1878). During this early period of Vacaville's history, settlement in the region was limited primarily to stock raisers and local services relating to agriculture.

Livestock raising and grain cultivation were primary agricultural interests in Vacaville and its vicinity between 1850 and the 1880s, while farmers also maintained vineyards, orchards, gardens, and field crops (Limbaugh & Payne 1978). However, during this period crop cultivation in the valley became more prevalent and stock raising less common. The completion of the Central Pacific Railroad in Solano County in 1868 connected Vacaville farmers and ranchers to new markets, particularly for transcontinental and international fruit shipments (Limbaugh & Payne 1978). It also brought settlement along the railroad's alignment. The railroad's completion also enabled Vacaville to join a regional travel network, with access via spur from nearby Elmira Station, as visitors from locations such as Sacramento had greater access to the town than had been previously provided by a limited network of roads (*The Times Herald* 1976).

Fruit cultivation became Vacaville's primary economic endeavor by 1880 and remained so into the early twentieth century. Many orchards were established and settlement in Vacaville increased, as farmland transitioned from larger acreages supporting stock raising to smaller farm properties of 30 to 40 acres. Demand for labor during harvesting season brought thousands of migrant workers to the region during the peak years of fruit cultivation, including Chinese workers primarily in the 1870s and 1880s, Japanese between the 1890s and 1920s, and Mexican laborers as well during these periods (Limbaugh & Payne 1978).

The City of Vacaville was incorporated in 1892. By 1914, streetcar service was established in Vacaville, helping to connect the town to nearby Suisun. However, the passenger service was short lived, ending in 1926, and preceded by eight years the end of passenger service along the Southern Pacific Railroad (formerly Central Pacific Railroad). By this time regional travelers were more frequently relying on automobiles and regional routes, such as U.S. 40, which was completed between San Francisco and Sacramento just as streetcar service was established (Limbaugh & Payne 1978).

World War I brought continued demand for fruit production to support wartime operations. However, wartime demand led to overproduction in the immediate post-war years. Further, Vacaville area farmers were faced with greater competition from farmers beyond the immediate area, who were earlier in adopting irrigation into their agricultural operations. Decades of intensive agricultural production also took a toll on local soil (Limbaugh & Payne 1978).

World War II boosted Vacaville's economy, as wartime industries in the greater Bay Area, regional canneries, and nearby Fairfield-Suisun Air Base (now Travis Air Force Base) brought additional residents to the area. Increased housing demand from the development of wartime industries and post-World War II settlement patterns led local leaders to pursue more focused zoning and planning policy (Limbaugh & Payne 1978). The city's population of around 2,000 residents, a moderate increase from just over 1200 in 1900, began a period of rapid growth after World War II. Likewise, I-80's completion in the 1960s increased Vacaville's connection with Sacramento to the north and the Bay Area to the south. Mirroring trends across the nation, orchards and farmland began to give way to suburban development. Vacaville annexed additional lands and extended municipal services. Travis Air Force Base and military-related industry accounted for over 16 percent of Vacaville's workforce. Basic Vegetable Products, a leading producer of onion and garlic products established earlier in the twentieth century, was also a top employer, as well as American Home Foods (canning), and Pacific Gas & Electric Company (Limbaugh & Payne 1978).

Although suburbanization occurred after World War II, agricultural remained important to the local economy. Irrigation, too, gained attention as regional and federal support for projects led to the development of the Solano Irrigation District in 1948 and Monticello Dam at Lake Berryessa in 1957 supported agricultural across Solano County. Additional water supply was also leveraged by emerging suburban areas that expanded the city's boundaries to the southwest and east. Notable suburban developments of the period included Vaca Valley Village, built between 1946 and 1948, and Leisure Town, an early retirement community in Northern California, built in 1963 across I-80 from the roadside destination Nut Tree store. Leisure Town was the city's largest subdivision as of 1970 (Limbaugh & Payne 1978).

Since the 1970s, suburban development in the vicinity of Vacaville has continued to spread gradually into former agricultural lands flanking the I-80 corridor, with shopping centers and medical complexes occupying land closest to each highway exit. The Project Site is located along the northeastern edge of the City of Vacaville, bordered by agricultural areas that remain unincorporated. much of which was historically part of Elmira Township, which contained the nearby community of Elmira.

Elmira

Originally known as Vaca Station, the community of Elmira was established in Solano's County Elmira Township, to the east of Vacaville and south of Dixon. Initially built along the Central Pacific Railroad in 1868, and about a mile south of the existing community of Elmira, several early buildings of Vaca Station were moved northward in anticipation of additional railroad connection with the Vaca Valley and Clear Lake Railroad Company in 1870. To avoid confusion between Vaca Station and nearby town of Vacaville, the name Elmira was chosen by local lawyer and teacher, Jerome Banks, in honor of his birthplace, Elmira, New York (Bowen 2001). By 1904, the town at Elmira included a public grammar and high school, despite setbacks caused by destructive fires and earthquake damage in the 1890s. Elmira also included two hotels, a lumber yard, livery stable, and roundhouse where locomotive engines could be repaired and fueled (Vacaville Heritage Council 2020). Additionally, Elmira's local drinking establishments were frequented by many who could not consume liquor in Vacaville, which became a dry town in 1909; this trend continued through World War I.

Located along the railroad, Elmira provided access to Vacaville via a spur line from the late nineteenth century into the early twentieth century; accordingly, Elmira was an important local hub in relation to its role in regional travel. However, the emergence of highways, namely U.S. 40 and its

successor in the region, I-80, reduced Elmira's importance, as passenger train travel became less frequent in the twentieth century. By the mid-twentieth century many buildings in Elmira were deteriorated, and several fires in the 1970s destroyed much of the remaining early fabric. Lands to the northwest of the town of Elmira and east of former U.S. 40 (along the I-80 corridor) were historically agricultural and have remained so into the twenty-first century. Historical maps and census data indicate the Project Site and immediately adjacent lands were used for grain cultivation, stock raising, and limited orcharding between the late nineteenth century to the present (Thompson & West 1877, UCSB 1937, Ancestry 2025). Orcharding within the Project Site was introduced in the 2010s, continuing agricultural uses in the area immediately east of the I-80 corridor (Google Earth 2025).

PG&E and Electrical Conveyance

PG&E was initially founded in 1852 as the San Francisco Gas Company, which rapidly grew in the last decades of the nineteenth century, largely through the acquisition of competing electrical utilities. Through a number of mergers, the company became the San Francisco Gas Light Company, then the San Francisco Gas and Electric Company and finally the Pacific Gas and Electric Company following its incorporation in 1905 (Linton 1969: 24). PG&E continued to incorporate smaller companies within northern California and by 1914 was one of the nation's largest utility companies (Linton 1969: 24).

In the late nineteenth century and early twentieth century, PG&E and many of its competitors began investing in hydroelectric generation as a way of meeting Northern California's growing demand for electricity. Hydroelectric generation in the region began in 1895 at Folsom Powerhouse on the American River in Sacramento County (JRP Historical Consulting Services and California Department of Transportation 2000). Hydroelectric generation continued to expand in California throughout the early twentieth century including development of the 118-mile-long transmission line that carried 75,000 volts from the Kern River No. 1 hydroelectric plant to Los Angeles constructed in 1907 by the Edison Electric Company (JRP Historical Consulting Services 2000). In 1913, PG&E developed its Drum Powerhouse and the related Drum-Cordelia 110 kV Transmission line. The line trended southwestward through Solano County from Drum in the Sierra Nevada mountains to Cordelia, at the time the utility's Bay Area power center, travelling through a corridor located to the west of the eventually site of the Vaca-Dixon Substation (PG&E 2020).

After World War I, the increasing demand for electricity underscored the need to generate a more reliable source of power to serve the San Francisco Bay Area and PG&E's growing number of customers throughout Northern California. PG&E's Chief Engineer Frank Baum began scouting locations on the Pit River in the remote Cascade Mountains in Shasta County for a new hydroelectric plant. The remote location and strong water supply provided favorable conditions for a plant, so, starting in 1920, PG&E began construction of the Pit River No. 1 Powerhouse and the associated Vaca-Dixon Substation in Solano County as part of the Pit Hydroelectric Project (PG&E 2020). Through the work of Baum and Architect Ivan Frickstad, both the powerhouse and substation were opened in 1922 and generated 220,000 kV of electricity for Oakland and the East Bay region through a 220 kV transmission line, which represented one of the most advanced designs of the period. Between 1922 and 1944, PG&E constructed an additional five powerhouses along the Pit River that sent electricity to the Vaca-Dixon Substation (PG&E 2020). This program led to PG&E becoming the biggest landowner in the state and one of the nation's biggest hydropower producers (*Los Angeles Times* 2001). Transmission lines providing step-down voltage to regional substations, such as that in Cordelia, were built between 1922 and into the 1950s (UCSB 1937, PG&E 1939, USGS 1953).

In the 1940s and 1950s, PG&E continued to rely on hydroelectric systems to generate electricity as the population expanded after World War II. PG&E launched one of the largest construction programs undertaken by a United States utility company including the construction of 14 hydroelectric plants, five steam plants, and thousands of miles of transmission lines (Cardno Entrix 2012). By 1955, PG&E provided power to 46 of the 58 counties in California, and in 1957 teamed up with General Electric to construct the world's first privately owned and operated nuclear facility, the Vallecitos atomic energy plant (Doyle 2001). At the same time, PG&E was diversifying into nuclear-generated power plants and geothermal, they were also developing a 500 kV Extra High Voltage (EHV) transmission line from Shasta County to Southern California (PG&E 2020). Starting in 1962, the 500 kV EHV line was constructed on steel lattice H-frame towers designed to support the heavy insulators and provide clearance between conductor strands. Along the transmission corridor, new substations were constructed and several existing substations, including Vaca-Dixon Substation, were upgraded with new equipment that could convert the 500 kV power. Each substation was upgraded with new computer technology that monitored the system. The 500 kV EHV line was completed in 1968 and ran from Northern California to an interconnection point with Southern California Edison at Midway Substation in Kern County (PG&E 2020). This 500 kV line runs generally north-south and connects to the Vaca-Dixon Substation but does not pass through the Project Site.

Though the 1960s saw great success in electrical conveyance expansion, the climate around energy changed in the 1970s. Environmental awareness saw electric consumption as a burden on the environment, and the public began to view nuclear plants, oil drilling, and electrical expansion as dangerous for the environment and the public at large. The fuel crisis in the 1970s led to higher costs for electricity. In response, PG&E expanded into renewable energy such as solar and wind. As of 2012, PG&E owned and operated nearly 20,000 miles of transmission power lines throughout California (Cardno Entrix 2012).

PG&E Substation Typology

The PG&E *Historic-Era Electrical Infrastructure Management Plan* (HEIMP) discusses multiple property types for their extensive network of facilities. One such property type is substations, which are critical switching points in the electric system that lower the voltage of the generated electricity for the consumer to use (PG&E 2020). High voltage transmission lines carry electrical circuits to the substations where switchgears and transformers convert (step-down) the current to lower voltages, and distribution lines then carry the lower voltage to the consumer.

Within the substation typology, there are two types of substations: Transmission Substations and Distribution Substations. Transmission Substations are the largest of the substations and are either step-up substations which increase voltage or step-down substations which decrease voltage. Early transmission substations were centered around a large central operational building with equipment stored inside, such as the Vaca-Dixon Substation. By the late 1920s, though, equipment was placed outside, and the large operational buildings were no longer needed. These stations are ever evolving with equipment updated with regularity (PG&E 2020).

Distribution substations are small-scale but the most common substation type because they are the last stop before the consumer. They are located closer to the customer than transmission substations and are typically simpler in design and operation with one or two sub-transmission or distribution lines coming in, and low voltage wood pole distribution lines going out to the customer. Like the transmission substations, early distribution substations had an operational building which housed equipment but evolved to later facilities that were outdoors with no buildings (PG&E 2020).

Italian Renaissance Revival Architecture

From circa 1880 to 1940, American architecture was defined by the Eclectic movement, which drew from historicist styles or other parts of the world for domestic, commercial, and industrial architecture design from Italian Renaissance, Tudor, Beaux Arts, and Colonial Revival (McAlester 2015: 406–407). The movement began in the late 1880s but gained momentum after the Chicago Columbian Exposition of 1893, which stressed the use of historical styles. After World War I, returning American soldiers were inspired by the styles they saw in Europe, and those styles were copied here as accurately as possible.

One of these Eclectic styles was the Italian Renaissance style, popular in the United States from circa 1890 to 1935 (McAlester 2015: 497). The style was used in dramatic contrast to the Gothic-inspired Shingle or Queen Anne styles and spread widely throughout the country after new techniques in masonry veneering were perfected and made it possible to construct the style more accurately. The character-defining features of the style include:

- Tile roof covering on a hipped low-pitched or flat roof
- Widely overhanging eaves supported by decorative brackets
- Rounded arches above doors and windows
- Symmetrical façade
- Accentuated entry with columns or pilasters (McAlester 2015: 496)

More elaborate examples included detailed arched openings, quoins, roof-line parapet or balustrade, pedimented windows, belt course, or rusticated first story (McAlester 2015: 499).

Spanish Colonial Revival Architecture

Another example of the Eclectic movement was Spanish Colonial Revival architecture, which was popular in the United States from circa 1915 to 1940 after it was introduced at the Panama-California Exposition in San Diego, California in 1915 (McAlester 2015: 522). Designed by Bertram Grosvenor Goodhue, the exposition displayed the richness of Spanish Colonial Revival architecture, which was then widely publicized throughout the country. Along with the exposition, the style was disseminated through plan books and brochures by architects who had studied the architecture of Mexico or the Mediterranean during World War I. These inspired architects brought the style back to the United States and used it in multiple forms, from the small bungalow to the intricate mansion. Each form shared the same character-defining features:

- Red tile roof covering a low-pitched or flat roof
- Stucco wall surface
- Asymmetrical façade

Arches above doors and principal windows (McAlester 2015: 520)The more elaborate examples expressed detailed features such as:

- Door surrounds
- Focal windows
- Stained glass
- Metal or wood window grilles
- Terracotta or stucco vents

- Towers (round or square)
- Balconies, open or wood, with wood or iron railings (McAlester 2015: 523–524)

Water Conveyance Systems – Reclamation Systems

The following context is provided in relation to the channelized segments of Gibson Canyon Creek that are within the CRSA and outside of the Project Site, as well as segments of laterals of the Kilkenny Canal that in one case border the Project Site along I-80, and area located opposite Kilkenny Road from the Project Site. The following context is excerpted from the California Department of Transportation's (Caltrans) *Water Conveyance Systems in California Historic Context Development and Evaluation Procedures* prepared with JRP Historical Consulting Services in 2000, which provides background information related to reclamation in California:

> Usage of the term "reclamation" in California has historically varied from that of other arid western states. In California, reclamation generally referred to draining "swamp and overflowed lands," or low-lying areas inundated by seasonal wetlands, while in other western states, the term commonly applied to irrigating arid or semi-arid land. In California, Reclamation Districts are special districts, primarily levee districts, organized for flood control or for drainage of surplus water to allow the land to be farmed. Ironically, much of the farmland within Reclamation Districts does require irrigation, but irrigation activity is generally subordinate to flood control.
>
> The opening of the twentieth century marked a turning point in reclamation in the United States. Heretofore, private capital, sometimes partnerships or settlement colonies, undertook reclamation work. However, privately financed projects met with mixed success, and the scale necessarily was limited. Development of larger projects involving substantially more acreage required the financial involvement of both the state and federal governments.
>
> Reclamation began as early as 1849 on the Sacramento-San Joaquin Delta with the construction of levees around Grand Island. Many of the first efforts of reclaiming land in California were private enterprises, such as the Kern Valley Water Company's construction of a canal 125 feet wide and 24 miles long to carry the floodwaters of the Kern River and the overflow of Buena Vista Lake.
>
> The 1902 Reclamation Act established the US Reclamation Service (later the Bureau of Reclamation) within the Department of Interior. Reclamation policies were initially designed to foster construction of irrigation systems, with the larger purpose of promoting the occupation of western lands by family farmers and ensuring an equitable distribution of water. The development of hydroelectric power became an additional goal as early as 1906. Often, the remoteness of the project sites required the Bureau to build its own hydroelectric plants and transmission lines.
>
> Under the 1902 Act, and in response to the perceived inequities of earlier land grabs such as the Homestead Acts of the 1860s, no water in excess of that needed to irrigate 160 acres (or 320 acres held jointly by husband and wife) could be delivered to a single farm operation. However, wholehearted enforcement of these provisions apparently never materialized, at least in some parts of California. Within five years of the Act's passage, a total of 24 projects were authorized, spread throughout the western United States. Notably, several projects extended beyond the bounds of a single state.

> Early federal reclamation projects in California (prior to World War I) included the Orland Project, in Glenn County in the northern Sacramento Valley; the Truckee-Carson project near the northern Lake Tahoe Basin; the Klamath Project, encompassing portions of Modoc and Siskiyou counties, as well as parts of southern Oregon; and another project involving the Colorado River. These projects commonly involved building storage and diversion dams, canals, and feed laterals that would distribute water from a reservoir to the privately held lands to be irrigated, and some of the projects incorporated earlier, privately built ditches within the new systems (JRP Historical Consulting Services and Caltrans 2000).

The channelized segments of Gibson Canyon Creek and Kilkenny Canal laterals evaluated for this study were recommended ineligible for the NRHP and CRHR.

Wastewater Management

Among properties surveyed in the CRSA was the former Gibson Canyon Creek Wastewater Treatment Plant, a non-operational wastewater management facility located to the immediate northwest of the Project area. The following context was excerpted from the *Drinking Water and Wastewater Treatment Facilities in California* prepared by JRP Historical Consulting, LLC and AECOM in 2023:

> Municipal officials paid little attention to waste disposal prior to the mid-nineteenth century. Even as towns began to develop drinking water systems, they saw no need to construct parallel systems for disposing of the wastewater […] Early sewerage construction in California occurred piece by piece, completed primarily by private interests in an unplanned, unsystematic fashion. At least 59 Californian cities constructed sewerage systems in the nineteenth century, and while many made efforts to bring order to their network of public and private pipes, few achieved anything more than patchwork solutions.
>
> Sewage and water treatment technologies advanced rapidly at the start of the twentieth century, giving rise to most of the processes that are still in use today. Chlorination was introduced for drinking water treatment in 1908, and rapid sand filtration entered common use in the 1920s. The era saw the beginning of the biological treatment of sewage with the introduction of trickling filters around the turn of the century and the activated sludge process in 1914. The biological treatment of sewage marked a shift to a more scientific process as they required a greater degree of control and an understanding of microbiology. It required new technologies in the form of pumps, aeration equipment, and tools for laboratory testing. Still, the technology was adopted only gradually, hindered by the slower rate of regulatory change, and as late as 1929 fewer than 20 percent of all sewage treatment plants used the activated sludge process.
>
> The wastewater treatment technologies developed in the early twentieth century—sedimentation basins, sludge digestors, trickling filters, activated sludge tanks, and the like—remain the primary tools in use today. A sanitary engineer transplanted from the 1930s would immediately recognize and comprehend the purpose and functioning of nearly every major piece of equipment found at a plant constructed in the twenty-first century, although there have been notable improvements to facilities, systems, and processes. Automation came late to wastewater and drinking water treatment systems in comparison to such similar industrial processes as oil refining and chemical manufacturing. Basic mechanical automation had been a part of water and sewer systems since the nineteenth century in such forms as floats used for triggering well pumps or automatic flushing tanks used for clearing sewer laterals. Electrically

> powered systems were employed as early as the late 1920s when the Sanitary District of Chicago installed electric eye monitors in sedimentation tanks to regulate sludge levels. However, treatment plants remained overwhelmingly under manual control into the postwar decades, with operators physically opening and closing valves and gates and taking laboratory measurements of turbidity and pH levels.
>
> Tightening municipal budgets in the 1970s prompted increased adoption of automation to economize on labor, real estate, chemical, and energy costs. The design of prewar plants had followed generally conservative standards and intentionally built-in excess capacity to handle unexpectedly high flows. This added to land acquisition and construction costs and permitted a more loosely controlled operation. Automation promised to maximize efficiency by continually adjusting flow rates, temperatures, pH levels, and other variables to remain within set parameters. This allowed adding treatment capacity to existing facilities, rather than building new plants, and offered savings on chemical, energy, and labor inputs […]Treatment plant instrumentation performed two chief tasks: monitoring conditions and automating processes…

By the mid-1970s, every wastewater treatment plant other than the smallest systems had a centralized control room that displayed information gathered from remote sensors, showing the operational status of the plant at a glance. By allowing a single worker to monitor plant operations, control rooms produced labor savings and were the one form of automation almost universally justifiable on economic grounds. A standard control room had display panels and consoles with indicators, recorders, alarms, and automatic and manual controls. The graphic panels frequently were organized into a sequence that followed the plant layout, though as plants increased in complexity this became less feasible. Computers were common at most new plants constructed in the late 1970s, though these primarily served to display and record data, rather than to directly control the treatment process.

The former Gibson Canyon Creek Wastewater Treatment Plant was recommended ineligible for the NRHP and CRHR.

Commercial/Light-Industrial Properties

The CRSA contains properties at 5131 Ellsworth Street and 5111-5115 and 5119 Quinn Road, immediately north of I-80. These properties consist of commercial/light-industrial buildings constructed between the mid-twentieth century and the recent past. Differing from heavy industrial buildings that typically house the processing of metals and assembly of large metal components (for example, smelting, steel production, ship building, automotive manufacturing), light industrial buildings typically house the processing and manufacturing of relatively small components (such as building materials, clothing manufacturing, food products, etc.) (Munce 1960). In the case of the subject buildings noted above, they also contain commercial uses (retail) or automotive repair uses, and in general contain those uses in buildings with utilitarian designs and no apparent architectural style.

These buildings feature rectangular footprints, heights of one to two stories, and are constructed of materials including concrete block, corrugated metal siding, and standing-seam metal, with gabled and flat roofs. These buildings are representative of common approaches to commercial/light-industrial construction from the mid-twentieth century that carried into the late twentieth century, and are designed to accommodate industrial uses that do not involve large-scale assembly or production processes. Each of the commercial/light-industrial properties evaluated was

recommended ineligible for the NRHP and CRHR. The individual analyses for these properties are provided in their attached DPR Forms.

Residential Properties

The CRSA includes several single-family residential properties, some of which contain ancillary buildings that appear to support limited agricultural uses or livestock raising. These properties are located along the east side of Mills Lane (west of the Vaca-Dixon Substation and Vaca Dixon Peaker Plant) in unincorporated Solano County, as well as along Willow Road to the south of the Project area, with some properties in this location within City of Vacaville and others unincorporated.

Architectural styles of the residential properties in the CRSA range from vernacular rural architecture (for example, 6861 Willow Road) to more recently built residences that reference a variety of common housing forms and elements, but which do not stand out for representing a particular historical architectural style. Most common are residences constructed between ca. 1940s and 1980s, which in most cases are designed in regionally common aesthetics, and typically with modest linear or L-shaped footprints, and heights of one- to two-stories. These residences are found along Mills Lane and Willow Road and feature exteriors clad with stucco, horizontal wood siding, or board-and-batten exterior, gable or hip roofs, and in most case rectangular window openings with vinyl or aluminum sash (McAlester 2015).

Each of the residential properties evaluated was recommended ineligible for the NRHP and CRHR and are not considered historical resources per CEQA. The property at 6861 Willow Road was not evaluated due to a lack of visibility of its built environment features from the right-of-way. This property was treated as a potential historical resource when considering potential impacts to historical resources.

5.1.1.5 Resources Inventory

Figure 5.1-1 and Table 5.1-1, below, identify the built environment resources surveyed and evaluated within the CRSA for this study.

5.1.1.6 Archival Research

Rincon completed background and archival research in support of a previous study in April 2023, August through October 2024, and conducted additional research for this study between May and July 2025. A variety of primary and secondary source materials were consulted. Sources included, but were not limited to historical maps, aerial photographs, and written histories of the area. The following sources were used to develop an understanding of the Project area and its context:

- AECOM, *Phase I Environmental Site Assessment: Proposed Vaca Dixon Power Center Adjacent to 5157 Quinn Road Vacaville, CA*. July 18, 2024. (AECOM 2024)
- ICF, Cultural Resources Inventory Report for the Corby Battery Energy Storage System Project in Solano County, California. September 2024. Provided by CEC.
- Geologic Maps via USGS National Geologic Map Database
- Historical aerial photographs accessed via Nationwide Environmental Title Research (NETR) Online
- Historical aerial photographs accessed via UCSB Library FrameFinder
- Historical USGS topographic maps

Table 5.1-1 Built Environment Properties Identified Within Cultural Resources Study Area

Property Address/Name (APN)	Evaluation	Note
Vaca-Dixon Substation Historic District*	Recommended eligible for NRHP and CRHR (3S; 3CS)	An approximately 224-acre substation property with contributing elements clustered at south, central portion of site. *Also recorded and evaluated by Corby BESS Project with same finding. **Adjacent to the Project gen-tie components.**
Vaca-Peabody 230 kV Transmission Line	Recommended eligible for NRHP and CRHR (3S)	Recorded and evaluated for Corby BESS Project. Located adjacent to the Project area
Vaca-Tesla 500 kV Transmission Line	Recommended ineligible for NRHP and CRHR (6Z)	Recorded and evaluated for Corby BESS Project. Outside the Project area.
Vaca-Vacaville-Cordelia 115 kV Transmission Line (segment) This line is located within the corridor containing the Drum-Cordelia Transmission Line (extant components of)	Recommended ineligible for NRHP and CRHR (6Z)	An approximately 650-foot segment of a PG&E owned-operated transmission line with steel lattice and tubular steel towers. **Adjacent to the Project gen-tie components.**
Vaca-Suisun 115 kV Transmission Line (segment) This line is located within the corridor containing the Drum-Cordelia Transmission Line (extant components of)	Recommended ineligible for NRHP and CRHR (6Z)	An approximately 785-foot segment of a PG&E owned-operated transmission line with steel lattice and tubular steel towers. **Adjacent to the Project gen-tie components.**
Fulton Junction-Vaca Dixon 115 kV Transmission Line (segment) This line is located within the corridor containing the Drum-Cordelia Transmission Line (extant components of)	Recommended ineligible for NRHP and CRHR (6Z)	An approximately 960-foot segment of a PG&E owned-operated transmission line with steel lattice and tubular steel towers. **Adjacent to the Project gen-tie components.**
Former Gibson Canyon Creek Wastewater Treatment Plant (APNs 0106-280-020 and 0106-280-060)	Recommended ineligible for NRHP and CRHR (6Z)	Approximately 150-acre, disused property located on the east side of Leisure Town Road, and northwest of Gibson Canyon Creek. Outside of the Project area.
Gibson Canyon Creek Channel (segments of)	Recommended ineligible for NRHP and CRHR (6Z)	A 680-foot channel segment located along northern border of property site, trending eastward through Vaca-Dixon Substation property and a 1,900-foot segment located north of the Project area, trending east-west to the immediate east of I-80 and immediate south of Weber Road. Outside of the Project area.
5131 Ellsworth Street* (APN 0133-050-010)	Recommended ineligible for NRHP and CRHR (6Z)	Approximately 10-acre commercial-industrial property containing eight buildings and a pond, located immediately southwest of the Project Site. *Also recorded and evaluated for Corby BESS Outside of the Project area.

Property Address/Name (APN)	Evaluation	Note
5111-5115 and 5119 Quinn Road (APNs 0133-0900-070, 0133-090-080, 0133-090-080)	Recommended ineligible for NRHP and CRHR (6Z)	Approximately 3.5-acre commercial/light-industrial property containing one age-eligible warehouse/retail building and two non-age-eligible commercial ancillary buildings. Outside of the Project area.
6984-6988 Mills Lane (APNs 0133-050-280 and 0133-050-270)	Recommended ineligible for NRHP and CRHR (6Z)	Approximately 10-acre, single-family residential/farm-ranch property located west of the Project Site. Outside of the Project Site.
7002 Mills Lane (APN 0133-050-130)	Not recorded or evaluated due to lack of age eligibility and lack of apparent exceptional significance.	Approximately 5-acre property containing a manufactured home (double-wide trailer), with an Assessor year-built date of 1981 (ParcelQuest 2024). Background research of Solano County Assessor data, historical aerial photography, and field observations determined this property does not contain any age-eligible built environment resources. Outside of the Project Site.
7016 Mills Lane (APN 0133-040-140)	Recommended ineligible for NRHP and CRHR (6Z)	Approximately 5.1-acre, single-family residential, farm-ranch property located west of the Project Site. Outside of the Project Site.
7038 Mills Lane* (APN 0133-040-160)	Recommended ineligible for NRHP and CRHR (6Z)	Approximately 4.8-acre, single-family residential, farm-ranch property located northwest of the Project Site. *Also recorded and evaluated by Corby BESS Project with the same finding. Outside of the Project Site.
7046 Mills Lane (APN 0133-040-170)	Recommended ineligible for NRHP and CRHR (6Z)	Approximately 4.6-acre, single-family residential, farm-ranch property located northwest of the Project Site. *Also recorded and evaluated by Corby BESS Project with the same finding. Outside of the Project Site.
Kilkenny Canal Laterals 4-C and 4-C-1	Recommended ineligible for NRHP and CRHR (6Z)	Lateral 4-C is located directly adjacent to the Project Siteand parallels the Project Site's northwest perimeter; Lateral 4-C-1 is located immediately south of the Project Site, and trends east-west along the opposite side of Kilkenny Road, continuing to the southwest adjacent to I-80 and to the east along further distant portions of Kilkenny Road. **Adjacent to Project Site and intersected by overhead Project components.**
Interstate 80 (segment)	Recommended ineligible for NRHP and CRHR (6Z)	Approximately 0.21-mile segment of freeway that runs parallel to the northwest boundary of the Project Site and is crossed by Project components. **Adjacent to Project Site and intersected by overhead Project components.**
6829 Willow Road (APN 0133-100-080)	Recommended ineligible for NRHP and CRHR (6Z)	Single-family residential property located on the west side of Willow Road to the south of the Project Site. Outside of the Project Site.
6861 Willow Road (APN 0133-090-220)	Identified in Reconnaissance Level Survey: Not Evaluated (7R)	Single-family residential property located on the west side of Willow Road to the south of the Project Site. This property was not evaluated due to a lack of visibility of its built environment features from the right-of-way. Outside of the Project Site.

- PG&E, *Pacific Gas & Electric Company Historic-Era Electrical Infrastructure Management Plan*. April 2020. (PG&E 2020)
- PG&E *Pacific Service Magazine*, Vol. 16 No.1. published in July 1924, accessed through Google Books (PG&E 1924)
- United States Department of Agriculture Web Soil Survey

5.1.1.7 California Historical Resources Information System Research

The California Historical Resources Information System (CHRIS) is the official state repository for cultural resources records and reports. Rincon submitted CHRIS records search request to the Northwest Information Center (NWIC) located at Sonoma State University on May 30, 2025. The purpose of the records search was to identify previously recorded cultural resources, as well as previously conducted cultural resources studies within the Project Site and within a 1.0-mile radius of the Project Site. Rincon also reviewed the National Register Historic of Properties (NRHP), the California Register of Historical Resources (CRHR), the California Historical Landmarks list, and the Built Environment Resources Directory (BERD), as well as its predecessor the California State Historic Property Data File. Additionally, Rincon reviewed the Archaeological Determination of Eligibility list.

The CHRIS records searches and background research identified 25 previous cultural resources studies covering areas within 1 mile of the Project Site. Of these studies, 18 include portions of the CRSA. The following 11 studies include portions of the CRSA: (S-016740, S-009124, S-012300, S-017298, S-047656, S-047936, S-004991, S-005207, S-019521, S007675, S-016207, S-022688, S020436, S-044434, S-023674, S-015510, S-038627, S-056118). Four include a portion of the Project Site (S-007675, S-038627, and S-056118, *Cultural Resources Inventory Report for the Corby Battery Energy Storage System Project in Solano County, California*). The CHRIS records searches and background research identified 25 previously-recorded cultural resources within the CRSA. Three of these resources were identified as being located adjacent to the Project Site (a summary of which is provided below); no resources were identified within the Project Site. A search through the BERD for Solano County identified one additional previously recorded resource, the Vaca-Dixon Substation. The resource was listed with a status code of 7N, "Needs to be reevaluated" under survey number 48-5688-001 (BERD 2025). No further information was included in the listing, and the CHRIS records search did not identify any additional documentation regarding this finding that suggests it supersedes the CHRIS record for P-48-002071.

Vaca-Dixon Substation Historic District

The Vaca-Dixon Substation Historic District (P-48-002041) and was initially recorded by Tracy Bakic with PAR Environmental Services, Inc. in 2002 for the *National Register of Historic Places Evaluation of the Vaca-Dixon Substation* (Bakic 2002). Bakic recommended the Vaca-Dixon Substation eligible as a district for listing the National Register of Historic Places (NRHP) under Criterion A, for its association with rapid development in the Bay Area and the first long distance 220 kV transmission line in the world. Under Criterion C, the district was recommended eligible for the work of PG&E architect Ivan Frickstad and the property's design. The period of significance was identified as 1922 to 1944, spanning the year construction of the substation began, to the year when PG&E's Pit No. 5 Powerhouse was completed on the Pit River in Shasta County, which involved related expansion of the Vaca-Dixon Substation (Bakic 2002).

P-48-002041 includes five additional built environment resources related to the Vaca-Dixon Substation Historic District: Vaca-Dixon Substation (referred to herein as the Substation's Main Building) (P-48-002072), Vaca-Dixon Substation Center Office (referred to herein as Office/Workshop) (P-48-002073), Vaca-Dixon Substation Center Switchyard (P-48-002074), Vaca-Dixon Substation Center Garage (P-48-002075), and the Vaca-Dixon Substation Center Water Tower (P-48-002076, nonextant) are located within PG&E's Vaca-Dixon Substation property, which is located within parcel APN 0133-060-070 containing Project gen-tie components. Review of resource maps provided in the records search results indicates none of the extant and related resources noted above (P-48-002072, P-48-002073, P-48-002074, P-48-002075, or P-48-002076) are within the Project Site, and no portions of the district or its contributing features intersect or overlaps with any proposed Project components. Of the contributing elements of the district, only the substation's main building was recommended individually eligible. A specific period of significance for the main building was not provided and is presumed to have been recommended as 1922 to 1944.

Drum-Cordelia Transmission Line (Extant Components of)

The Drum-Cordelia Transmission Line is an approximately 110-mile transmission corridor alignment that extends from PG&E's Drum Powerhouse in Placer County to Cordelia Substation in Solano County (P-48-002080, Walker and Matuk 2019). This resource was recorded by Matt Walker and Brian Matuk of Cardno, Inc. and Evans & De Shazo between 2018 and 2019 to document inventory the historical alignment of the Drum-Cordelia 110 kV transmission line and the modern operational segments in the Drum-Cordelia corridor managed by PG&E. Evaluation recommended the Drum-Cordelia Transmission Line as a contributing resource to the eligible Drum-Spaulding Hydroelectric System Historic District, with significance under criteria NRHP/CRHR criteria A/1 and C/3 and a period of significance of 1912-1931.

A 3.5-mile spur corridor extends the Drum-Cordelia Transmission Line corridor to Vaca-Dixon Substation and contains three 115 kV transmission lines that follow a parallel alignment through lands to the north of Project components: the Vacaville-Cordelia, Vaca-Suisun, and the Fulton Junction-Vaca 115 kV transmission lines. Resource mapping by NWIC does not provide an accurate depiction of the alignment's existing location in relation to the Project Site, and incorrectly indicates the resource intersects with the Project Site's gen-tie components within APN 0133-060-070. However, field surveys and reviews of aerial photography indicate extant components of the resource are located in the northwest corner of APN 0133-060-070, but do not intersect with the Project Site or any of its gen-tie components. Although Project gen-tie components are proposed within APN 0133-060-070, the gen-tie components will not connect to any extant components of the Drum-Cordelia Transmission Line. Background research for this study determined that transmission line segments extending from the remaining extant towers of the Drum-Cordelia Transmission Line in the northwest corner of APN 0133-060-070 connect to modern tubular steel towers directly adjacent to the Vaca-Dixon Substation. As detailed further below, the historical alignment and tower type supporting this segment is non-contributory to P-48-002080. Nonetheless, this non-contributory segment will not be directly altered by the Project.

Vaca-Peabody 230 kV Transmission Line

The Vaca-Peabody 230 kV Transmission line was recorded and evaluated by Joshua Severn with ICF as part of the previously prepared Corby BESS Report. The transmission line was recommended eligible for the NRHP/CRHR under Criterion A/1 as the line "embodies one of the first instances of 220+ kV transmission to the Bay Area and that this transmission line's development resulted in

notable population, commercial, or transportation booms in the region…" with a period of significance of 1926 (ICF 2024). This transmission line is located within the CRSA for the current study and trends southward from the Vaca-Dixon Substation and passes near the Project Site to the immediate east, without entering the BESS Project Area. This transmission line is not proposed to be altered by the Project.

5.1.1.8 Historical Maps and Aerial Imagery Research

Rincon completed a review of historical topographic maps and aerial imagery to ascertain the development history of the Project Site and nearby lands where Project components are proposed to be located. Topographic maps from 1908 and 1917 depict the Project Site and its vicinity as largely undeveloped, with no built environment features within the Project Site. These maps show a road trending east-west along a similar alignment to present-day Kilkenny Road, as well as Gibson Canyon Creek running generally east-west through lands to the north of the Project Site (USGS 1908, 1917). These maps also depict two properties (marked with a black square) in the immediate vicinity of the Project Site. One of these properties appears at the approximate location of present-day 6861 Willow Road to the southwest of the Project Site, and the other approximately at the present-day location of 5310 Kilkenny Road to the southeast of the BESS Project Area. The nature of development on these nearby properties (i.e., building types and layout) was not discernable from the topographic maps. Aerial photography from 1937 depicts the Project Site as undeveloped land that appeared to be under agricultural use, potentially grain cultivation, with no indication of row crop or orchard use, to the immediate south of the southwest-to-northeast-trending U.S. Highway 40 (U.S. 40). The Vaca-Dixon Substation was present to the immediate north of U.S. 40 (present day I-80), as were seven single-family dwellings, and related arc-shaped driveways framed with trees, which were all associated with the substation (UCSB 1937, USGS 1941). Overhead Project gen-tie components extending northward from the Project Site and over I-80 are proposed to enter an area immediately west of the former substation dwellings.

Additional background research indicates the substation and dwellings were constructed in 1922-1923, as discussed in further detail in Section 5.6.1 of Confidential Appendix F. A 1941 topographic map depicts a transmission line, trending east from the Drum-Cordelia 110 kV corridor toward the Vaca-Dixon Substation, where the line shifted to a southeastward trajectory to connect with the substation; by 1953, this line was parallel to another line (USGS 1941, 1953). The 1941 and 1953 topographic maps also show what appears to be the Vaca-Peabody 230 kV transmission line trend southward from the Vaca-Dixon Substation through lands to the east of the Project Site. Aerial imagery shows the substation dwellings were present from 1949 through 1957, but by 1965 three dwellings were removed (UCSB 1949, 1957, 1965). The same aerials do not depict built environment features within the Project Site, which appeared to be under agricultural use. By 1957, a canal lateral or ditch structure had been built parallel to the northwest boundary of the Project Site (alongside the adjacent highway), as well as along the southern border of the Project Site on Kilkenny Road; these laterals/ditches appear to have been part of the Kilkenny Canal system. A 1965 aerial photograph depicts similar conditions within the Project Site. However, by this year, widening of the adjacent U.S. 40 to create I-80 occurred adjacent to the Project Site. Also, the Kilkenny canal laterals previously depicted on the 1957 aerial appeared to have been rebuilt or redesigned, given their adjacency to I-80. The Kilkenny Canal lateral along the northwest perimeter of the Project Site followed a similar alignment, while the lateral that had been located along the southern boundary of the Project Site was replaced by a lateral segment on the opposite side of Kilkenny Road. By 1965, some residential development occurred to the northwest of the Project Site, along present-day Mills Lane, while the residential property at 6861 Willow Road was the only property present along

Willow Road; likewise, 5310 Kilkenny Road was the only property along that road in the vicinity of the Project Site (UCSB 1965). By 1970, the segment of Gibson Canyon Creek to the northeast of the Project Site was channelized. The Project Site remained unchanged from approximately 1970 to approximately 2003, by which time three billboard structures were constructed along the Project Site's northwest perimeter. By same year a nonextant drainage or irrigation ditch was built along the southern perimeter of the Project Site. In approximately 2010, the Project Site transitioned to use as an orchard, and the ditch that appeared by 2003 was filled and replaced by orchard area (Google Earth 2025). Conditions within the Project Site have remained consistent since ca. 2010.

5.1.1.9 Archeological Field Survey and Results

Rincon Cultural Resources Specialist Elaine Foster conducted a pedestrian survey of the APN 0133-060-070, where gen-tie components of the Project will be located, on May 31, 2023. Additional survey of that parcel was completed by Rincon Archaeologist Darren Putty on August 16, 2024. Both surveys were limited to the APN 0133-060-070 exclusively as access to adjacent properties was not granted at the time of the surveys. On July 5, 2025, Ms. Foster conducted a pedestrian survey of the southern portion of the Project Site where the BESS is proposed on APN 0133-060-060. Archeological surveys were completed using transect intervals spaced 15 meters (50 feet) and oriented generally from east to west. Exposed ground surfaces were examined for artifacts (e.g., flaked stone tools, tool-making debris, stone milling tools, ceramics, fire-affected rock), ecofacts (marine shell and bone), soil discoloration that might indicate the presence of a cultural midden, soil depressions, and features indicative of the former presence of structures or buildings (e.g., standing exterior walls, postholes, foundations) or historical debris (e.g., metal, glass, ceramics). Ground disturbances, such as burrows and drainages, were also visually inspected. Survey accuracy was maintained using a handheld Global Positioning Satellite unit and a georeferenced map of the Project Site. Physical characteristics and survey conditions were documented using field records and a digital camera.

Topography throughout the Project Site was generally flat. Landscaping within the Project Site included cedar trees and shrubs planted along fences. Ground surfaces were predominantly covered by dense annual grasses resulting in zero to poor (0 to 30 percent) ground surface visibility. Ground surface visibility around the perimeter of the southern portion of the Project Site was obscured by imported gravel, limiting ground surface visibility. In these areas, boot scrapes were performed to improve ground surface visibility and survey reliability. Rodent burrow tailings (up to 2 burrows per square meter) afforded examination of subsurface soils. Evidence of past ground-disturbing activities includes an approximately 15-foot-wide possible irrigation ditch that extends north south through the center of the Project area. The ditch is detailed in the property evaluation in Section 5.6.1 of Confidential Appendix F.

Minimal quantities of modern debris including rebar and concrete were observed randomly dispersed throughout the Project area. No remnants or evidence, including foundations, of the three previously removed single family dwellings was observed within the Project area. No historic-period materials such as bottles, metal, ceramics, were observed within the Project area that would indicate the potential for subsurface cultural deposits. Additionally, although Gibson Canyon Creek borders the northern portion of the Project area, the section immediately adjacent to the Project area appears channelized and no Native American archaeological materials were observed during the survey. No archaeological resources were identified within the Project area; however, due to the poor quality of visibility, this does not preclude archaeological resources from being present within the Project area.

5.1.1.10 Architectural Survey and Results

Under the direction of Rincon Architectural Historian Ashley Losco, Ms. Foster also conducted a built environment survey of APN 0133-060-070, where the gen-tie components of the Project will be located, on May 31, 2023. This parcel contains the nearby PG&E Vaca-Dixon Substation. The substation was therefore recorded and evaluated for historical resources eligibility to identify any impacts to setting occurring through changes to the property. On August 16, 2024, Rincon Architectural Historian Josh Bevan and Rincon Architectural History intern Sophie Jorcino conducted a built environment survey of the remainder of the APN 0133-060-070 and properties within a one-parcel buffer, including 5131 Ellsworth Road, residential properties on the east side of Mills Lane, a segment of Gibson Canyon Creek, and the northern section of the PG&E Vaca-Dixon Substation along North Meridian Road. Rincon Senior Architectural Historian JulieAnn Murphy surveyed a segment of the former Gibson Canyon Creek Wastewater Treatment Plant in the Project area vicinity on January 23, 2025. On July 8, 2025, Rincon Architectural Historian Josh Bevan conducted a built environment survey of the Project area, as well as adjacent segments of Kilkenny Canal, Gibson Canyon Creek, and residential properties located along Willow Road, and the commercial property at 5111-5115 and 5119 Quinn Road.

Interior access to properties beyond the Project areas was not available. Therefore, the built environment survey was conducted entirely from the public right-of-way. Due to property access limitation, the residential property at 6861 Willow Road, south of and outside of the Project area, was unable to be recorded to the extent necessary to support a sound historical resource evaluation. Therefore, this property was assigned a status code of 7R (Identified in Reconnaissance Level Survey; Not evaluated) but was considered a potential historical resource with regard to this study's analysis of potential impacts to historical resources. Pursuant to Office of Historic Preservation Guidelines (California Office of Historic Preservation 1995: 2), the surveyed properties containing age-eligible resources (45 years) were evaluated for inclusion in the NRHP, CRHR and recorded on California Department of Parks and Recreation (DPR) 523 series forms. The overall condition and integrity of the properties were documented and assessed. Per CEC guidance, resources recorded and evaluated within the last 5 years were not documented with updated recordation or survey records for this study.

As a result of the field survey and background research, 19 historic age-built environment properties were identified within the CRSA (listed in Table 5.1-1). The Vaca-Dixon Substation Historic District, located adjacent to Project gen-tie components, is recommended eligible for listing in the NRHP and CRHR and is described in Section 5.6.1 of Confidential Appendix F.

The Vaca-Peabody 230 kV transmission line, located to the immediate east of the Project area, was evaluated for the Corby BESS Project as eligible or the CRHR in September 2024. Three segments of the Vaca-Vacaville-Cordelia 115 kV, Vaca-Suisun 115 kV, and Fulton Junction-Vaca Dixon 115 kV transmission lines are located adjacent to the Project gen-tie components. As detailed on the attached DPR Forms, these modern operational transmission lines are located within a portion of the Drum-Cordelia Transmission Line corridor, which has been previously recorded and evaluated as a contributing element of the eligible Drum-Spaulding Hydroelectric Project Historic District. However, the three existing 115 kV transmission line segments are recommended ineligible for NRHP or CRHR listing due to alterations to their alignment and tower type, resulting in loss of integrity. A segment of I-80 is intersected by the alignment of Project gen-tie components is recommended ineligible for listing in the NRHP and CRHR. Two segments of the Kilkenny Canal are adjacent to the Project area and are recommended ineligible for listing in the NRHP and CRHR. The

remaining resources were found ineligible for NRHP or CRHR listing; or, in the case of 6861 Willow Road, were unable to be evaluated due to a lack of visibility of built environment features.

5.1.1.11 Native American Consultation

Rincon contacted the Native American Heritage Commission (NAHC) on April 28, 2023, to request a search of the Sacred Lands File (SLF), as well as an AB 52-specific contact list of Native Americans culturally affiliated with the Project area, which resulted in a "negative" response from the NAHC (Appendix B of Confidential Appendix F). On October 1, 2024, Rincon sent informal outreach letters to each of the NAHC-listed contacts via email. On August 14, 2025, Rincon resubmitted its search request to the NAHC and again received a "negative" response. This outreach was conducted in compliance with the CEC requirements identified in Cal. Code Regs. Tit. 20 § B, Appendix B, Section (2)(D) to compile information that can be used to inform the cultural resources assessment regarding sacred sites and/or cultural resources that may be located within or near the Project area.

On August 22, 2025, the NAHC responded to Rincon's SLF and AB 52 contact list request, stating that the results of the SLF search were negative. In their response, the NAHC provided a list of eight Tribal contacts who may have knowledge of cultural resources within the Project area. In response to the original outreach letters Rincon received one response on October 28, 2024, from Yvonne Perkins, Tribal Historic Preservation Officer of the Yocha Dehe Wintun Nation, stating that the Project area is within the aboriginal territories of the Yocha Dehe Wintun Nation. Tribal Historic Preservation Officer Perkins further requested formal consultation with the lead agency. Rincon responded on November 4, 2024, stating that the request for formal consultation has been forwarded to the lead agency and requesting any information that would inform the cultural resources study.

5.1.2 Regulatory Setting

A review of existing relevant LORS was conducted to understand the regulatory context for cultural and tribal resource management surrounding the Project. These are detailed in Section 5.1.5, Laws, Ordinances, Regulations, and Standards.

5.1.3 Impact Analysis

The following subsections discuss the potential direct and indirect impacts related to cultural and tribal resources from construction and operation and maintenance (O&M) of the Project.

5.1.3.1 Methodology

Rincon completed archival research, pedestrian surveys for archaeological and built environment historical resources, and contacted the NAHC and Tribes, to gather information related to the cultural resources that may be impacted by the Project. The full analysis is included in the Vaca Dixon Power Center Project Cultural Resources Technical Report prepared by Rincon included in Confidential Appendix F.

California Public Resources Code (PRC) Section 21804.1 requires that lead agencies determine if a project could have a significant impact on historical or unique archaeological resources. As defined in PRC Section 21084.1, a *historical resource* is a resource listed in, or determined eligible for listing in, the CRHR, a resource included in a local register of historical resources or identified in a historical resources survey pursuant to PRC Section 5024.1(g), or any object, building, structure, site, area,

place, record, or manuscript that a lead agency determines to be historically significant. PRC Section 21084.1 also states resources meeting the above criteria are presumed to be historically or culturally significant unless the preponderance of evidence demonstrates otherwise. Resources listed in the NRHP are automatically listed in the CRHR and are, therefore, historical resources under CEQA. Historical resources may include eligible built environment resources and archaeological resources of the precontact or historic periods.

CEQA Guidelines Section 15064.5(c) provides further guidance on the consideration of archaeological resources. If an archaeological resource does not qualify as a historical resource, it may meet the definition of a "unique archaeological resource" as identified in PRC Section 21083.2. PRC Section 21083.2(g) defines a *unique archaeological resource* as an 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, or 3) is directly associated with a scientifically recognized important prehistoric or historic event or person.

If an archaeological resource does not qualify as a historical or unique archaeological resource, the impacts of a project on those resources will be less than significant and need not be considered further (*CEQA Guidelines* Section 15064.5[c][4]). *CEQA Guidelines* Section 15064.5 also provides guidance for addressing the potential presence of human remains, including those discovered during the implementation of a project.

According to CEQA, an impact that results in a substantial adverse change in the significance of a historical resource is considered a significant impact on the environment. A substantial adverse change could result from physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the historical resource would be materially impaired (*CEQA Guidelines* Section 15064.5 [b][1]). *Material impairment* is defined as demolition or alteration in an adverse manner [of] those characteristics of a historical resource that convey its historical significance and that justify its inclusion in, or eligibility for inclusion in, the CRHR or a local register (*CEQA Guidelines* Section 15064.5[b][2][A]).

If it can be demonstrated that a project will cause damage to a unique archaeological resource, the lead agency may require that 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 resources cannot be left undisturbed, mitigation measures are required (PRC Section 21083.2[a][b]).

Section 15126.4 of the *CEQA Guidelines* stipulates that an Environmental Impact Report shall describe feasible measures to minimize significant adverse impacts. In addition to being fully enforceable, mitigation measures must be completed within a defined time period and be roughly proportional to the impacts of the project. Generally, a project which is found to comply with the Secretary of the Interior's *Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings* (the Standards) is considered to be mitigated below a level of significance (*CEQA Guidelines* Section 15126.4 [b][1]). For historical resources of an archaeological nature, lead agencies should also seek to avoid damaging effects where feasible. Preservation in place is the preferred manner to mitigate impacts to archaeological sites; however, data recovery through excavation may be the only option in certain instances (*CEQA Guidelines* Section 15126.4[b][3]).

The information in the Vaca Dixon Power Center Project Cultural Resources Technical Report prepared by Rincon included in Confidential Appendix F and CEQA guidelines for cultural resources were used to inform the following impact analysis.

5.1.3.2 Impact Evaluation Criteria

The potential for impacts to cultural resources and their uses were evaluated using the criteria described in the California Environmental Quality Act (CEQA) Environmental Checklist (Appendix G of the CEQA Guidelines). For cultural resources, the CEQA Checklist asks, would the Project:

- Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5;
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5; and/or
- Disturb any human remains, including those interred outside of dedicated cemeteries?

Regarding potential impacts to tribal cultural resources, the CEC would consult with eligible tribes once the Opt-In Application is deemed complete. Impacts on tribal cultural resources are not addressed in this Opt-In Application because under Assembly Bill (AB) 52, the lead agency, CEC, must identify these resources during consultation. Therefore, no tribal cultural resources have been identified, and the impacts associated with tribal cultural resources have not been determined.

Impact CUL-1

Threshold:	Would the Project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?

Construction

Less Than Significant Impact. The field survey and background research identified one qualifying built environment historical resource that is located directly east of the Project gen-tie lines, and within the same Solano County Assessor's parcel as the Project gen-tie lines, the Vaca-Dixon Substation Historic District. The resource was previously evaluated and recommended eligible for the NRHP and CRHR as historic district under Criteria A/1 and C/3 in 2002. As of this evaluation, the identified district is not known to have been formally determined eligible by the California State Historic Preservation Officer. The Cultural Resources Technical Report recommends the resource eligible for the NRHP and CRHR as historic district under Criteria A/1 and C/3. The previously recorded Vaca-Peabody 230 kV Transmission line was recommended eligible for the CRHR in 2024 in the Corby BESS Report and is located adjacent to the Project area. Therefore, the Vaca-Dixon Substation Historic District and Vaca-Peabody 230 kV Transmission Line qualify as historical resources as defined by CEQA. The remaining built environment properties identified as a result of this study were found ineligible for NRHP or CRHR listing and do not qualify as historical resources under CEQA.

Pursuant to Section 15064.5(b) of the *CEQA Guidelines*, a significant impact to a historical resource will occur if a project materially alters in an adverse manner those physical characteristics which convey the significance of the resource. The Project does not include direct alteration to any features of the Vaca-Dixon Substation Historic District and will occur outside of the identified boundary of the district. While construction of the Project will introduce new visual elements into the setting of the Vaca-Dixon Substation Historic District, these changes will be consistent with the

historic and current setting of the property, which has remained an electrical distribution facility since its development. It therefore will not result in a change in the setting of the resource such that it would no longer be able to convey its historical significance. The Project will not alter the Vaca-Peabody 230 kV Transmission Line. Similarly, it will not result in a change in the setting of the resource such that it would no longer be able to convey its historical significance. Changes related to the Project will be consistent with the historic and current setting of the property, which has remained connected to the nearby Vaca-Dixon Substation since its development. The Project will not alter any features of the residential property at 6861 Willow Road. Although this property's historical resource status could not be confirmed due to limited visibility of its built environment features, the property's setting has changed over time, including the development of the I-80 corridor, subdivision to the immediate north and south, and development of transmission lines to the northeast and east, such that the Project would not result in a substantial change to the property's setting. Therefore, the Project would result in a less-than-significant impact to historical resources.

Operation

No Impact. O&M activities associated with the Project would not involve ground-disturbing activities that would have the potential to destroy a historical resource. Therefore, no impacts to historical resources would occur as a result of Project operation.

Impact CUL-2

Threshold:	Would the Project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

Construction

Less Than Significant Impact with Mitigation. The Cultural Resources Technical Report did not identify any archaeological resources in the Project area as a result of the records search or pedestrian survey. However, archaeological resources may be unexpectedly encountered during ground-disturbing activities. Implementation of Mitigation Measures CUL-1 through CUL-3 would reduce potentially significant impacts to unanticipated archaeological resources identified during Project construction to a less than significant level.

Operation

No Impact. O&M activities associated with the Project would not involve ground-disturbing activities that would have the potential to destroy a historical resource. Therefore, no impacts to archaeological resources would occur as a result of Project operation.

Mitigation Measures

CUL-1 Designated Cultural Resources Specialist

The Applicant shall retain a designated Cultural Resources Specialist (CRS) who will be available to carry out mitigation measures related to cultural resources for the Project. The CRS shall meet or exceed the Secretary of the Interior's Professional Qualifications Standards for archaeology (National Park Service 1983). The CRS shall be qualified in site detection, evaluation of deposit

significance, consultation with regulatory agencies, and completing site evaluation and mitigation activities.

CUL-2 Worker Environmental Awareness Program (WEAP)

Prior to the start of ground disturbance, the construction crew shall participate in on-site training on the proper procedures to follow if cultural resources are uncovered during the Project excavations, site preparation, or other related activities. This Worker Environmental Awareness Program shall include a comprehensive discussion of applicable laws and penalties under the law, samples or visuals of artifacts that might be found in the vicinity of the Project Site, a discussion of what such artifacts may look like when partially buried or wholly buried and then freshly exposed, a discussion of what prehistoric and historic-period archaeological deposits look like at the surface and when exposed during construction, instruction that employees are to halt work in the vicinity of a discovery (within 50 feet) and requirements for working within 50 feet of an Environmentally Sensitive Area. This information shall be provided in an informational brochure that outlines reporting procedures in the event of a discovery and shall be provided to all individuals working on-site.

CUL-3 Unanticipated Discovery of Cultural Resources

In the event archaeological resources are unexpectedly encountered during ground-disturbing activities, work within 50 feet of the find shall halt and the Project CRS contacted immediately to evaluate the resource. If the resource is determined by the CRS to be prehistoric, then a Native American representative shall also be contacted to participate in the evaluation of the resource. If the CRS and/or Native American representative determines it to be appropriate, archaeological testing for CRHR eligibility shall be completed. If the resource proves to be eligible for the CRHR and significant impacts to the resource cannot be avoided via Project redesign, the CRS shall prepare a data recovery plan tailored to the physical nature and characteristics of the resource, per the requirements of the CCR Guidelines Section 15126.4(b)(3)(C). The data recovery plan shall identify data recovery excavation methods, measurable objectives, and data thresholds to reduce any significant impacts to cultural resources related to the resource. Pursuant to the data recovery plan, the CRS and Native American representative, as appropriate, shall recover and document the scientifically consequential information that justifies the resource's significance. The lead agency shall review and approve the treatment plan and archaeological testing as appropriate, and the resulting documentation shall be submitted to the regional repository of the CHRIS, per CCR Guidelines Section 15126.4(b)(3)(C).

Impact CUL-3

Threshold:	Would the Project disturb any human remains, including those interred outside of formal cemeteries?

Construction

Less than Significant Impact with Mitigation. No formal cemeteries or human remains interred outside of formal cemeteries are known to exist within the Project Site. However, ground disturbing activities have the potential to disturb soils that contain human remains. Therefore, the potential exists for previously undiscovered human remains to be discovered during Project-related ground disturbance. Mitigation Measure CUL-4 would require that construction be halted in the vicinity of discovery of human remains and remain halted until avoidance or treatment of the human remains

has been carried out. With adherence to Mitigation Measure CUL-4, potential impacts would be less than significant.

Operation

No Impact. O&M activities associated with the Project would not involve ground-disturbing activities that would have the potential to destroy a historical resource. Therefore, no impacts to human remains would occur as a result of Project operation.

Mitigation Measures

CUL-4 Human Remains

No human remains are known to be present within the Project Site. However, the discovery of human remains is always a possibility during ground-disturbing activities. If human remains are found, the State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. In the event of an unanticipated discovery of human remains, the County Coroner must be notified immediately. If the human remains are determined to be of Native American origin, the Coroner will notify the NAHC, which will determine and notify a Most Likely Descendant (MLD). The MLD has 48 hours from being granted site access to make recommendations for the disposition of the remains. If the MLD does not make recommendations within 48 hours, the landowner shall reinter the remains in an area of the property secure from subsequent disturbance.

5.1.4 Cumulative Impacts

Impacts of the Project would be considered cumulatively considerable if they would have the potential to combine with other past, present, or reasonably foreseeable projects to become significant.

Impacts to cultural resources are generally site- and resource-specific, and therefore potential cumulative impacts may be realized if two or more projects occur in the same location. The geographic scope of potential cumulative cultural resource impacts is limited to the immediate vicinity of ground-disturbing activities that would occur during construction. Moreover, all Cumulative Project proponents would be expected to comply with state law relating to cultural resources. Cumulative impacts to cultural resources would be less than significant.

5.1.5 Laws, Ordinances, Regulations, and Standards

The LORS that may apply to the Project related to cultural resources are summarized in Table 5.1-2. The local LORS for the City of Vacaville and Solano County were reviewed and do not explicitly pertain to cultural or tribal cultural resources.

Table 5.1-2 LORS Applicable to Cultural Resources

Jurisdiction	LORS	Applicability	Opt-In Application Reference	Project Conformity
Federal	Section 106, National Historic Preservation Act	Applies if the Project would require a federal permit.	NA	The Project may require a federal permit from the USFWS, which would trigger Section 106 review.
State	California Environmental Quality Act	Requires state and local government agencies to inform decision makers and the public about the potential environmental impacts of the Project and to reduce environmental impacts to the extent feasible.	Throughout this Opt-In Application	Certification of the Project by the CEC will be required to comply with CEQA, as required by the CEC's Opt-In Application process.
State	Assembly Bill 52	Requires lead agencies to consult with Tribal Governments to address Tribal Cultural Resources that may be impacted by a Project.	NA	CEC will be required to complete consultation as part of the Opt-In process.
State	Health and Safety Code Section 7050.5	Work shall be halted in the event of human remains discovery.	Impact CUL-5	Mitigation Measure CUL-4 requires compliance with Health and Safety Code Section 7050.5 in the event of a discovery of human remains.
State	PRC Section 5097.98	Most Likely Descendant designation following discovery of human remains determined by the Coroner to be of Native American origin.	Impact CUL-5	Mitigation Measure CUL-4 requires compliance with PRC Section 5097.98 in the event of a discovery of human remains.

CEQA = California Environmental Quality Act; PRC = Public Resources Code;

5.1.5.1 Federal LORS

Federal regulatory protection for cultural resources would apply if a specific project involved federally owned or managed lands, a federal license, permit, approval or funding, and/or crosses federal lands. The Project may require a federal permit from the United States Fish and Wildlife Service and therefore would require compliance with Section 106 of the National Historic Preservation Act (NHPA).

5.1.5.2 State LORS

California Environmental Quality Act

CEQA requires state and local government agencies to inform decision makers and the public about the potential environmental impacts of the Project and to reduce environmental impacts to the extent feasible. Appendix G of the CEQA Guidelines includes criteria for evaluating potential impacts related to cultural resources.

California Assembly Bill 52 of 2014

As of July 1, 2015, Assembly Bill (AB) 52 was enacted and expands CEQA by defining a new resource category, "tribal cultural resources". AB 52 establishes, "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" (PRC Section 21084.2). It further states the CEQA lead agency shall establish measures to avoid impacts that would alter the significant characteristics of a tribal cultural resource, when feasible (PRC Section 21084.3).

PRC Section 21074 (a)(1)(A) and (B) define *tribal cultural resources* as "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe" and that meets at least one of the following criteria, as summarized in *CEQA Guidelines* Appendix G:

1) Listed or eligible for listing in the CRHR, or in a local register of historical resources as defined in PRC Section 5020.1(k).
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 PRC Section 5024.1. In applying these criteria, the lead agency shall consider the significance of the resource to a California Native American tribe.

AB 52 also establishes a formal consultation process with California Native American tribes that must be completed before a CEQA document can be certified. Under AB 52, lead agencies are required to "begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project." California Native American tribes to be included in the process are those that have requested notice of projects proposed within the jurisdiction of the lead agency. The CEC as the lead agency would be required to comply with AB 52 during the Opt-In process.

California Health and Safety Code

Section 7050.5 of the California Health and Safety Code states that in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the Coroner of the county in which the remains are discovered has determined if the remains are subject to the Coroner's authority. If the human remains are of Native American origin, the Coroner must notify the NAHC within 24 hours of this identification.

California Public Resources Code Section 5097.98

Section 5097.98 of the California PRC states that the NAHC, upon notification of the discovery of Native American human remains pursuant to Health and Safety Code Section 7050.5, shall immediately notify those persons (i.e., the Most Likely Descendant [MLD]) that it believes to be descended from the deceased. With permission of the landowner or a designated representative, the MLD may inspect the remains and any associated cultural materials and make recommendations for treatment or disposition of the remains and associated grave goods. The MLD shall provide recommendations or preferences for treatment of the remains and associated cultural materials within 48 hours of being granted access to the site.

5.1.6 Agencies and Agency Contact

Table 5.1-3 lists the state agencies responsible for cultural resources management for the Project and the issues they are responsible for addressing.

Table 5.1-3 Agency Contacts for Cultural Resources

Issue	Agency	Contact
Native American Tribal Cultural Resources, Traditional Cultural Properties, Most Likely Descendant Designation	Native American Heritage Commission	1550 Harbor Blvd. Suite 100 West Sacramento, CA 95691 (916) 373-3710
Human Remains Discovery	Solano County Coroner's Office	520 Clay St, Fairfield, CA 94533 (707) 784-7500

5.1.7 Permits and Permit Schedule

Other than certification by the CEC, no state, federal, or local permits are required for the Project for the management of cultural resources. Consultation with the State Historic Preservation Officer will not be required under Section 106 of the NHPA unless the Project requires a federal permit.

5.1.8 References

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