

Chapter 22 Cultural Resources

22.1 Introduction

This chapter addresses potential Project impacts to cultural resources in the study area, including resources that would potentially be affected by the construction and operation of the Project. Cultural resources are defined as archaeological sites and features and historic built environment buildings and structures that are at least 45 years old; they are further defined in Section 22.2.4, Section 22.2.5, and Appendix 4A, *Regulatory Requirements*. The cultural resources study area (study area) is the area in which the Project has potential to affect cultural resources and is described in Section 22.2.1.

Archaeological and historic built resources are located in the cultural resources study area and represent early Native American and post-Contact era histories. They include resources recorded on California Department of Parks and Recreation (DPR) 523-series forms and evaluated for National Register of Historic Places (NRHP) and California Register of Historical Resources (CRHR) eligibility. These resources also include recorded resources that have not been evaluated and resources that have been neither recorded nor evaluated. No new field surveys were conducted in support of resources identification and evaluation because of a lack of access in the study area, as described in Chapter 3, *Environmental Analysis*. The Authority would complete NRHP and CRHR evaluation of potentially significant cultural resources as part of the Project. The Authority has prepared the *Sites Reservoir Project Cultural Resources Report* based on prior study information, updated records searches, and historical map research (ICF 2021). The report contains confidential cultural resources information. In accordance with state (California Government Code Section 6254.10.a) and federal (36 Code of Federal Regulations 800.11(c)) requirements to protect locational information about such resources, the report is confidential.

Chapter 23, *Tribal Cultural Resources*, addresses the Authority's consultations with Native American tribes with respect to the geographic areas of the Project with which such tribes are traditionally or culturally affiliated.

Tables 22-1a and 22-1b summarize the CEQA determinations and NEPA conclusions for construction and operations impacts, respectively, between alternatives for the Project that are described in the impact analysis.

Table 22-1a: Summary of Construction Impacts and Mitigation Measures for Cultural Resources

Alternative	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
Impact CUL-1: Cause a substantial adverse change in the significance of a historic built resource			
No Project	NI/NE	-	NI/NE
Alternative 1	S/SA	Mitigation Measure CUL-1.1: Identify Significant Built Resources Mitigation Measure CUL-1.2: Avoid Significant Built Resources Mitigation Measure CUL-1.3: Protect Significant Built Resources Mitigation Measure CUL-1.4: Significant Historic Built Resources Treatment	SU/SA
Alternative 2	S/SA	Same as Alternative 1	SU/SA
Alternative 3	S/SA	Same as Alternative 1	SU/SA
Impact CUL-2: Cause a substantial adverse change in the significance of an archaeological resource			
No Project	NI/NE	-	NI/NE
Alternative 1	S/SA	Mitigation Measure CUL-2.1: Identify Significant Archaeological Resources Mitigation Measure CUL-2.2: Avoid Significant Archaeological Resources Mitigation Measure CUL-2.3: Protect Significant Archaeological Resources Mitigation Measure CUL-2.4: Significant Archaeological Resources Treatment	SU/SA
Alternative 2	S/SA	Same as Alternative 1	SU/SA
Alternative 3	S/SA	Same as Alternative 1	SU/SA
Impact CUL-3: Disturb any human remains, including those interred outside of formal cemeteries			
No Project	NI/NE	-	NI/NE
Alternative 1	S/SA	Mitigation Measure CUL-3.1: Cemetery Relocation Plan Mitigation Measure CUL-3.2: Avoid, Protect, and Treat Human Burials	SU/SA
Alternative 2	S/SA	Same as Alternative 1	SU/SA
Alternative 3	S/SA	Same as Alternative 1	SU/SA

Notes:

NI = CEQA no impact

S = CEQA potentially significant impact

SU = CEQA significant and unavoidable

NE = NEPA no effect or no adverse effect

SA = NEPA substantial adverse effect

Table 22-1b: Summary of Operations Impacts and Mitigation Measures for Cultural Resources

Alternative	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
Impact CUL-1: Cause a substantial adverse change in the significance of a historic built resource			
No Project	NI/NE	-	NI/NE
Alternative 1	NI/NE	-	NI/NE
Alternative 2	NI/NE	-	NI/NE
Alternative 3	NI/NE	-	NI/NE
Impact CUL-2: Cause a substantial adverse change in the significance of an archaeological resource			
No Project	NI/NE	-	NI/NE
Alternative 1	S/SA	Mitigation Measure CUL-2.1: Identify Significant Archaeological Resources Mitigation Measure CUL-2.2: Avoid Significant Archaeological Resources Mitigation Measure CUL-2.3: Protect Significant Archaeological Resources Mitigation Measure CUL-2.4: Significant Archaeological Resources Treatment	SU/SA
Alternative 2	S/SA	Same as Alternative 1	SU/SA
Alternative 3	S/SA	Same as Alternative 1	SU/SA
Impact CUL-3: Disturb any human remains, including those interred outside of formal cemeteries			
No Project	NI/NE	-	NI/NE
Alternative 1	S/SA	Mitigation Measure CUL-3.1: Cemetery Relocation Plan Mitigation Measure CUL-3.2: Avoid, Protect, and Treat Human Burials	SU/SA
Alternative 2	S/SA	Same as Alternative 1	SU/SA
Alternative 3	S/SA	Same as Alternative 1	SU/SA

Notes:

NI = CEQA no impact

S = CEQA potentially significant impact

SU = CEQA significant and unavoidable

NE = NEPA no effect or no adverse effect

SA = NEPA substantial adverse effect

22.2 Environmental Setting

This section defines the study area, provides background information, discusses the resource identification methods, and summarizes the archaeological and built resources in the study area.

22.2.1. Cultural Resources Study Area

The study area is the area in which the Project has potential to affect cultural resources during construction and operations. The study area consists of the areas of potential direct impacts (ADIs) to archaeological resources and to historic built resources.

The study area does not include areas of existing water conveyance infrastructure where there would be no ground disturbance or change to an existing structure or its use during Project construction or operations. The excluded areas include portions of the existing TC Canal and GCID Canal that convey water between the cities of Red Bluff and Willows, between the community of Maxwell and the town of Dunnigan, and between the town of Hamilton City and the city of Willows.

The archaeological resources ADI includes all areas where Project activities have the potential to cause ground disturbance that may physically change archaeological sites or features. This ADI is the Project footprint, with the exceptions listed above, plus a 100-foot-wide cultural resources buffer to allow for variability and minor adjustments depending on onsite conditions and encompasses 21,628 acres. The archaeological ADI excludes the 100-foot buffer at the RBPP because it is an existing facility and the installation of new pumps in existing pump bays will not involve ground disturbance or structural alterations.

The historic built resources ADI includes all areas where Project activities have the potential to physically change buildings, structures, and objects, or their settings. This ADI corresponds to the ADI for archaeological resources plus the county assessor's parcels that are within or intersect it (487 parcels total). Parcels that intersect the archaeological ADI are not included in the historic built resources ADI because the Project activities would be restricted to existing structures at the following locations: the GCID Main Canal between the Project elements at the Hamilton City diversion and the three siphons at Willows; the GCID Main Canal between Willows and the TRRs; and the TC Canal south of the TRRs.

22.2.2. Cultural Resources Background

Archaeological, ethnographic, and historical context information for the study area is largely based on earlier studies reported by White et al. (2009). The previous studies include comprehensive public and private archival research of the Project's early Native American and post-Contact eras. Appendix 22A, *Cultural Resources*, presents the Project's comprehensive environmental and cultural setting (White et al. 2009) that includes:

- the environmental context that identifies the study area's flora, fauna, and geology relevant to cultural studies;
- the ethnographic context that describes the historical record pertaining to Native American ethnography in the study area, such as records of villages, homes, and ceremonies;
- the archaeological context that identifies and describes the archaeological models that characterize the study area's early Native American history, including chronology from the terminal Pleistocene era to European contact, and regional cultures that are expressed through archaeological data;

- and the historical context that describes the post-Contact era and includes 19th- and 20th-century historical themes that characterize the study area’s post-Contact history, including colonial settlement, ranching and agriculture, county and town histories including the town of Sites, and regional transportation development.

This section presents a summary of the study area’s early Native American, ethnographic, and post-Contact era histories to contextualize the archaeological and historic built resources that are discussed in this chapter. The summary is content from two of the Project’s technical studies (Horizon 2019; ICF 2021).

22.2.2.1. Early Native American History

Similar to in many parts of California, archaeologists are still in the process of building a basic archaeological record for the Sacramento Valley and western hills. Much of the record is unknown, and evidence of the early occupations dating more than 3,000 years ago is especially lacking. However, broad outlines of California prehistory are best captured by an integrative scheme that proposes three basic prehistoric periods: Paleoindian, Archaic, and Emergent. The Archaic is further subdivided into the Lower, Middle, and Upper periods, and the Emergent is divided into the Lower and Upper periods (sometimes referred to as Phase 1 and Phase 2). Each period is characterized by a generally prevailing economic, cultural, and environmental condition. However, each geographical region is expected to have a different pattern of prehistoric culture and culture change. The dating of these various periods continues to be refined; those presented below are largely derived from *The Central Valley: A View from the Catbird’s Seat* (Rosenthal et al. 2010). The archaeological periods are listed in Table 22-2.

Table 22-2. Archaeological Periods of the Sacramento Valley

Archaeological Period	Age Years Before Present	Characteristics
Paleoindian Period: Western Clovis Tradition	> 10,550 years	Opportunistic hunters and foragers; possibly hunted Pleistocene megafauna. Low population. Fluted projectile points (darts), flaked stone crescents.
Lower Archaic Period: Borax Lake Pattern	10,550 – 7,550 years	Hunters and foragers. Low population. Wide-stemmed projectile points; hand stones and milling stones; use of obsidian.
Middle Archaic Period: Windmill	7,550 – 2,550 years	Introduction of dietary specializations focused on acorns, deer, and freshwater and anadromous fisheries. Establishment of villages with cemeteries. Expanded material culture, including basketry, use of marine shell for beads and ornaments; continued use of hand stones and milling stones; a variety of dart forms such as notched, stemmed, thick leaf or lozenge, and narrow concave.
Upper Archaic Period: Berkeley Pattern	2550 – 1000 years	Increased cultural diversity represented by distinct regional specializations; increased populations; more complex social structure. Introduction of mortars and pestles for acorn processing; expanded bone tool industry; diamond-shaped and stemmed projectile points.

Culture contact between Native Californians and immigrant populations from throughout the world occurred at various times in northern California, generally between 1808 to 1820 in the Sacramento Valley. Sites in Colusa County near the Sacramento River all contain evidence of Patwin interaction with non-indigenous populations in archaeological deposits that mix traditional Native American artifacts with metal and glass items.

22.2.2.2. Ethnographic History

The study area is primarily within the ethnographic territory of the Hill and River Patwin: the Nomlaki lived at the very northern reaches of the proposed reservoir (Barrett 1908; Kroeber 1932; Merriam 1967). These three groups spoke historically related languages belonging to the Wintuan language family of the Penutian linguistic stock, which indicates that they shared common ancestors and a pattern of historical interdependence (Kroeber 1925:351–363; Shipley 1978:82, 83). In keeping with their shared history, they all practiced a form of sociopolitical organization that Kroeber (1925) identified as the tribelet system. As defined by Kroeber, “tribeleets,” or little tribes, were the basic political and proprietary unit of Central California. The tribelet controlled a local territory recognized by adjoining communities and exercised protective measures against trespassers. Tribelet territories generally were “well-defined, comprising in most cases a natural drainage area” (Kroeber 1925:831), and these territories were recognized by adjoining communities. The resources and territories controlled by a tribelet were usually defended against uninvited trespassers but considered to be communal holdings of tribelet members. The tribelet political structure served to coordinate economic activity such as resource scheduling, trade, ceremonies, and feasts. Tribelets were composed of a central village and related hamlets and activity areas. The main village was the population center, the site of the main assembly lodge, the residence of leaders and specialists, and held caches of ceremonial regalia, food, and trade goods.

In addition to similarities in village size, organization, and structures, such as the pithouse and acorn granary, the Hill Patwin and River Patwin also practiced a unique and elaborate form of the Kuksu ceremonial cycle. The Kuksu society, (also known as the “Big Head” or “Bull Head” dance) was a male secret society focusing on initiation through the ritualistic raising of the dead. Though rituals varied between the groups, they all included an element of death and rebirth or revitalization. Novices were “killed” or speared, and then later, washed and “brought back to life.”

Hill Patwin Territory and Villages

The Hill Patwin claimed the eastern foothill valleys of the North Coast Ranges including Antelope, Indian, Bear, Little Indian, Long, Morgan, and Cache Creek valleys. At its northern extent, the Hill Patwin boundary ran east-west from a point near the confluence of Big and Little Stone Creeks east to a point approximately 5 or 6 miles west of the town of Princeton (Barrett 1908:289; Johnson 1978:350, 351; Merriam 1967:55).

The northwestern boundary ran along the divide of the Eel and Sacramento River drainages from approximately Goat Mountain east of Clear Lake, south beyond Cache Creek along the ridge between Morgan and Jerusalem valleys, across Putah Creek south through Butts and Pope creeks, and finally encompassed lower Napa Valley (Barrett 1908:286; Merriam 1955:46). Five Hill Patwin subgroups are delineated in the ethnographic literature (Barrett 1908; Kroeber 1932;

Merriam 1967): (1) Choo-hel'-mem-sel, in Antelope Valley and the southern end of Indian Valley, from the Wintun and Pomo borders south to Leesville and Venagdo, and east to the town of Sites; (2) the Kletwin, from Cortina Ridge east and south to about Rumsey; (3) the Kopa, located in the Capay Valley from Rumsey south and including the Knoxville area to the west; (4) the Chenposel, in Bear Valley, Little Indian Valley, and including the Long Valley Lolsel; and (5) the Napa to the south in Napa Valley and beyond (Merriam 1967:262–263). Most of the study area is contained within Choo-hel'-mem-sel lands.

Hill Patwin village and place name information is provided by Barrett (1908), Kroeber (1925, 1932), and Merriam (1967, 1977). The Hill Patwin typically designated their tribelets after people, rather than land, with names ending in “-sel.” These sources were consulted for ethnographic place names in or near the study area.

The ethnographies suggest that Antelope Valley was sparsely populated relative to other Hill Patwin locations. However, a total of seven Hill Patwin ethnographic place names pertinent to the study area were identified. Ethnographic sources did not provide specific map coordinates, but provided descriptive information, some of which is conflicting.

The primary village center of the Choo-hel'-mem-sel tribelet was Po-ne klab'-be (aka Pone or Po-na hlab'-be), at the foot of Grapevine Grade and “near County Well” (Merriam 1977:189), 4 or 5 miles northwest of Sites. The site of Kow'-klab'be (elder tree) is described by Merriam (1977:188) as a small rancheria on Grapevine Creek just east of Pone. Kroeber (1932:352) identifies the village of Tsudukut, which was 5 miles north of Pone.¹ Choo'-dah-koot was a rancheria approximately 1.5 miles west of the town of Sites. In 1924, Indian occupants of Choo'-dah-koot included Mr. Jesse Berryessa and “Old Man” McGill (Merriam 1977:187). The Tahp'-kal'-li (cottonwood) rancheria is described by Merriam (1967:189) as located in the canyon a mile or more northwest of Choo'-dah-kut in Antelope Valley. Len'-mah tin'-be was a big rancheria approximately 2 miles northwest of the town of Sites near the county road and over the ridge approximately 1 mile east of Tahp'-kal'-li (Merriam 1977:188). Barrett (1908:297) also identified To'pLabe, which he indicated was a rancheria approximately 5 miles north-northwest of Sites. It is interesting to note that Merriam's (1977:190) consultant told him this same site (referred to as Top'hlab'-be or Toop'hlab'-be) was not a rancheria, but actually a hill on which people took refuge ages ago during a great flood.

River Patwin Territory and Village

As implied by their name, the River Patwin occupied lands along the Sacramento River directly adjacent and east of the Hill Patwin. Kroeber (1932:259) identified three tribelets, each of which spoke a different dialect. From north to south, these are the Koru' (or Ko'roo), Sāka (Merriam's [1977] Pat'-win), and Yo'doi groups. Koru' territory, which contains the eastern portion of the study area, extended from just north of present-day Princeton on the river, south to the mouth of Sycamore Slough. On the west side of the river, the Koru' occupied a swath of plains approximately 6 miles wide; to the east they controlled a strip approximately 2 miles wide. Seven villages, all on natural rises along the west bank of the Sacramento River, were recorded (Kroeber 1932:59–260). Again, from north to south, these are: K'eti', Ts'a', Wa'itere, Katsi'l, Tatno, Koru', and Kukui. The villages of Ts'a' and Wa'itere are in close proximity to the study

area adjacent the Sacramento River. The county and city name “Colusa” was derived from Koru’, which was at the same location of the modern town.

Sāka controlled a similar range of territory along the river below Koru’ south to around the current Colusa/Yolo County line, and Yo’doi is south of that to an undermined point below the town of Knights Landing (Kroeber 1932:260–262). Other Patwin populations are known to have inhabited the southern Sacramento Valley west of the Sacramento River to Suisun Bay and west into lower Napa Valley. However, these communities were quickly decimated by Spanish missionization in the early 1800s and little is known about them beyond what can be gleaned from mission records (Johnson 1978:351).

Nomlaki

The Nomlaki occupied lands directly north of the Patwin to as far north as Cottonwood Creek, which defines the present-day Tehama/Shasta County line, and which includes nearly all of Glenn and Tehama Counties. Similar to the Patwin, there were Hill and River divisions of the Nomlaki. The Hill Nomlaki territory extended west to the crest of the Coast Range mountains and included the west edge of the Sacramento Valley to approximately 5 miles west of the Sacramento River. The River Nomlaki held lands that were along both sides of the Sacramento River between approximately Toomes Creek in the south and north to Cottonwood Creek. The northwest corner of the study area was likely within the territory of the Dah’chin-chin’-ne tribelet Hill Nomlaki.

Merriam’s (1977:191, 192) consultant provided Choo-hel’-mem-sel names for a number of Nomlaki villages that may be in or near the study area. Four of the sites are each generally referenced as a “village north of Grapevine Creek.” These include Kaa-en, Kow’ hlab’be (elderberry village), ‘Hlah’lah mem (rotten water), and Tarr’ ‘hlabbe (willow village). Pot-bah was another rancheria located north of Grapevine Creek; Merriam (1977:192) notes that Barrett said it was “about 5 miles north-northwest of Sites.” Toop’‘hlab’-be is also listed by Merriam (1977:192) as a Hill Nomlaki place name, as well as one associated with the Hill Patwin (1977:190).

As noted above, the Nomlaki are linguistically closely related to the Patwin, and they also shared a large number of cultural traits. For example, because they inhabited like environments, Nomlaki subsistence practices and staple foods were virtually the same as those of their Patwin neighbors. Other common traits were the construction of semi-subterranean, earth-covered dance houses; the strong leadership of a community chief, which was an inherited position; and the existence of occupational specialization, in which specific families were considered specialists in a variety of positions, such as fishing, medicine, or basketry. Some differences include the construction of family homes and menstrual huts out of thatch rather than being earth-covered. Also, the headman’s home was earth-covered, and simultaneously served as the men’s sweat lodge (Goldschmidt 1978:343–345, 347).

Trading was an occupational specialty, but non-specialist individual families might also conduct trade for necessities. Trades between Hill and River Nomlaki populations were common, whereby the River communities would supply fish, and the Hill families would provide seeds and animals. The Nomlaki also participated in the trading system that extended up the

Sacramento Valley to the Oregon border, as shells from the San Francisco Bay were traded for skins, yew wood, and obsidian that would be passed down from the north (Goldschmidt 1978:345).

Contemporary Tribes

Today's descendants of the ethnographic-era Patwin and Nomlaki tribes continue to live and thrive in the region around the Project area. Federally recognized tribes in the vicinity include the Cachil Dehe Band of Wintun (Colusa Indian Community) in Colusa; the Kletsel Dehe Wintun Nation (Cortina Indian Rancheria) west of Williams; the Yocha Dehe Wintun Nation (Rumsey Indian Rancheria) in Brooks; the Grindstone Indian Rancheria of Wintun-Wailaki Indians at Elk Creek; and the Paskenta Band of Nomlaki Indians (Nomlāqa Bōda) near Corning. Several of these Tribes have developed successful gaming venues that have allowed their members to experience economic stability, and through which they have made substantial contributions to their surrounding communities such as providing grants to schools and building medical facilities. All of the Tribes invest considerable time and energy into maintaining their cultural heritage by sponsoring and supporting language and arts programs.

22.2.2.3. Post-Contact Era History

The following overview is taken from the Project's technical study (Horizon 2019; State Historic Preservation Officer 2019), and contains information derived from White et al. 2009 (see Appendix 22A).

The history of culture contact between indigenous and non-Native American populations in the northern Sacramento Valley began with the Spanish explorer Gabriel Moraga in 1808 and ended suddenly with the devastating smallpox epidemic in 1833. In this 25-year span, the river tribes and their neighbors met non-Native Americans for the first time. No formal European or Euro-American outposts or long-term footholds are known to have been made on indigenous lands before 1833, and there is no clear evidence of pandemics or significant social or economic upheaval prior to this date.

A number of overland fur trapping and trading expeditions visited the Central Valley in the late 1820s and early 1830s. These included two trips by trapper Jedediah Smith, of the Rocky Mountain Fur Company, who led parties of trappers through California in 1827 and 1828. Beginning in 1829, the Hudson's Bay Company sent trapping expeditions into the northern portion of California from Oregon, and other trapping parties followed suit. By 1833 the hunting parties reportedly encountered depleted game. The fur trapper's journals also comment on the great number of native peoples encountered in the Sacramento Valley through the winter of 1832. However, in spring and summer 1833, traditional Native American lifeways came to a sudden and somber end when smallpox or malaria, introduced by the trapper companies, swept through and decimated the Sacramento Valley tribes, including the River Patwin.

Euro-American colonists arrived in the Sacramento Valley in the early 1840s when Mexican-era land grants were issued in quick succession in territory now found in Tehama, Butte, Glenn, and Colusa Counties. Three of the land grants, Rancho Larkin's Children, Rancho Jimeno, and Rancho Colus, were located along the Sacramento River, upstream and downstream from the current city of Colusa in the Project vicinity.

The Rancho Colus was purchased by Charles Semple from John Bidwell in 1849 on the recommendation of his brother, Robert, who had visited the area in 1847. Together, the brothers established the town of Colusa and developed a thriving riverboat trade. Use of the Sacramento River for transporting goods and people allowed for rapid growth of the northern Sacramento Valley.

Colusa County (initially called Colusi County) was one of the original 27 counties established in 1850 when California became absorbed into the United States. At that time, the county also included all of what is now Glenn County and a portion of Tehama County. The modern boundary was delineated in 1891.

Use of foothills on the west side of the Sacramento Valley for livestock grazing was an important element of California's economy prior to the discovery of gold, as the raising of cattle was the primary focus of the ranchos. Early settlers were impressed with the region's valleys that were covered with verdant fields of head-high clover, abundant water, and highly productive range. These areas of northern California, which were some of the first exploited for rangeland purposes, experienced a boom between 1850 and 1860 as the Gold Rush created an enormous demand for meat and other animal products. The cattle industry declined as the Gold Rush waned, and the valley ranchers turned to using the valley for the dry farming of crops, primarily wheat.

By the 1880s, wheat farming in the valley had become less profitable for several reasons. First, the intensive dry farming depleted the soil and, second, the transcontinental railroad achievement reduced the West's dependence on locally grown wheat. Because the region was so arid and only suitable for grazing livestock and dry farming, irrigation was prompted by local citizens. The first efforts to organize farmers and build a canal to deliver water from the Sacramento River to parched fields occurred in 1883 with little success. However, passage of the Wright Irrigation District Act of 1887 encouraged the formation of irrigation districts by giving them power similar to those of municipalities. This quickly led to the founding of the Central Irrigation District in November 1887. The irrigation district extended along the west edge of the Sacramento Valley from Jacinto in the north, south to Berlin. The main canal followed the west boundary of the district and was fed by Salt Creek, Stone Corral Creek, Funk Slough, Hunter Slough, and Logan Creek, in addition to water taken from the Sacramento River. As was common for the times, the Central Irrigation District went through numerous owners, and the construction of the main canal (i.e., Central Canal) and laterals progressed in a sporadic manner. A significant reorganization of the local water districts took place in 1918–1919. As a result, in 1920 the Central Canal was renamed the GCID Main Canal, managed by GCID; the canal was also completed this same year. Today the GCID Main Canal extends for 65 miles and there are approximately 900 miles of lateral canals and drains.

The TC Canal was constructed by Reclamation and TCCA, the latter of which was organized in 1965 as part of the CVP. The southern reach of the TC Canal was completed in 1975. It is a 122-mile, concrete-lined canal that extends from the RBPP in Tehama County through Glenn County to Dunnigan in Yolo County.

Antelope Valley and the Town of Sites

Granville Perry Swift was the first recorded settler in Antelope valley. He arrived in California in 1844 and went to work as a hunter and furrier for John Sutter (Horizon 2019) in present-day Sacramento. Swift's cousin, Franklin Sears, joined Swift in 1844, and the two men formed a partnership harvesting hides and other products from tule elk, deer, and the large herds of feral cattle which had strayed northward from Mexican ranchos and were common on the central Sacramento Valley frontier (Wilkes 1841:384). In 1847, Swift and Franklin Sears moved their cattle operation to a new frontier in Colusa County, and built a headquarters along what would be later known as Stone Corral Creek, approximately 0.67 miles east of Antelope Valley. Swift and Sears built an adobe and a corral, the latter made from local sandstone boulders and nestled into a nook in a large boulder outcrop overlooking the creek. The location of their homestead later became known locally as "Swift's Stone Corral," and it is presently State Historical Landmark #238.

The Sites Ranch, at the center of Antelope Valley and the inundation area, was founded by John Sites in 1858 after stints in gold mining and operating a cattle ranch in Yolo County. Over the years, Sites made improvements to the land, and expanded both ranch and farm operations to include 7,000 acres (Rogers 1891:30). Land for the town of Sites was purchased from John Sites by the railroad to establish a depot station in Antelope Valley. In addition to the town itself, Sites Cemetery, a 1-acre parcel east of the town, is on the ranch property. The cemetery contains markers that document deaths as early as 1868. Three deeds for the Sites Cemetery, that transferred land title from W. F. Sites to the Trustees of the Sites Cemetery Association, were filed in 1904. The town of Sites was established in 1887 as the railhead when the new narrow gauge train line, the Colusa and Lake Railroad (C&LRR), was extended from Maxwell to Antelope Valley (URS 2013:5-10).

The Sites town plat map was filed with the Colusa County Recorder's Office on January 14, 1887, by John Sites. The town was named in his honor (Green 1880:145). The plan featured streets and avenues up to 80 feet wide, and alleys up to 30 feet wide. The main thoroughfare, named Stone Corral Avenue, was 200 feet wide and paralleled the railroad. The original plat map shows a large central square and 11 blocks, numbered one through four and six through 12. The town square was originally planned as the location of the railroad roundhouse. There were 121 building lots shown on the 1887 plat map. The first buildings constructed in 1886 were related to the railroad: a warehouse, water tower, and railroad station. A general store was also built that year. By the end of 1887, there was a hotel, livery stable, post office, and a new school to replace the first school built in Antelope Valley in 1871. The town continued to grow and thrive into the early 1900s, but by 1910 the economic prosperity of the region was beginning to wane. The area experienced a rapid economic decline between 1910 and 1915, and local businesses were forced to close as people left the area. The decline in wheat production, decreases in stone orders at the quarries, new competition with automobiles for personal transportation and trucks for commercial business, and a demographic shift away from the foothills to urban centers in the Sacramento Valley during the early 20th century also meant the end of C&LRR. The Railroad Commission discontinued operation of passenger service to Sites in August 1914. Freight operations met a similar fate, and in May 1915, the C&LRR ceased all service; in July 1917, C&LRR assets were sold at public auction.

The remaining population of Sites and Antelope Valley found success in farming and stock-raising after the end of the Great Depression, and these ventures continue to the present day. The town of Sites took a final hit when most of its remaining historic structures were destroyed in a major wildfire in 1965. The fire burned six buildings and erased traces of several streets. When unification with the Maxwell School District occurred in 1965, a new bus route was established to bring students from Sites, Lodoga, and Leesville to Maxwell to attend school. The Sites post office was discontinued in 1968 (Durham 2000). By 1987, the town had a population of just 17.

The school buildings, train depot, railroad warehouse, church buildings, stores, and hotels have been burned or razed, and only a few of the original landmarks of the old town still exist (URS 2013:5-11, 5-12).

Community of Maxwell

Maxwell sits at the middle Colusa County, and has a strong agricultural heritage that is tied to the earliest ranching settlers in northern California (Colusa County 2021).

Founded in the mid-1870s as the town of Occident “laid out on the survey of the Northern Railroad about 10 miles north of Williams,” the community of Maxwell consisted of a store, school, and saloon alongside two or three residences as of April 1877 (Colusa County 2021). The town’s original saloon was located at the present intersection of Oak Street and Old Highway 99W. Occident’s post office dates to April 1877, with George Maxwell, an early resident and saloon owner, designated as the postmaster.

The post office was referred to as “Maxwell” from its inception and, after September 1878, the Central Pacific Railroad Company referred to it as such (Colusa County 2021). Maxwell served as a major hub for the Central Pacific as well as the Colusa and Lake Railroad to Sites.

Early ranchers found little timber in the Maxwell area, but plenty of stone. Granville P. Swift began ranching on lands west of Maxwell and constructed a corral from local stone. Swift’s Stone Corral is located on the Maxwell-Sites road and is California Historical Landmark No. 238 (Office of Historic Preservation 2021b).

Town of Hamilton City

General James Hamilton purchased 5,000 acres in 1905 for an Alta California Sugar Beet Company factory. He constructed a sugar beet refinery and founded Hamilton City to house factory workers. The Alta California Sugar Beet Company was renamed the Sacramento Valley Sugar Company in 1908. It subsequently operated as the Holly Sugar Corporation, a subsidiary of the Spreckels Sugar Company. The Spreckels purchase connected the city’s legacy with the magnate Claus Spreckels, the Sugar King of California, who owned sugar cane and beet farms in Yolo and Santa Cruz Counties (Magnuson 1918:76-78).

The Southern Pacific Railroad (SPRR) constructed the Colusa & Hamilton Railroad (C&HRR) in 1913 to serve the Hamilton factory. The C&HRR also connected Hamilton to the City of Colusa and other small communities situated on the west side of the Sacramento River. This rail connection was known as the “Beet Line” and was discontinued in 1985. Another prominent beet sugar industrialist, Vincenzo Gianelli, funded a highway bridge spanning the Sacramento River.

The bridge connected Gianelli's Hamilton City factory to his Butte County beet farms and was built by master engineer John. B. Leonard in 1908 to 1911. The Gianella Bridge (also known as the Gianelli Bridge) was listed in the National Register in 1982 but was subsequently dismantled in 1987 (Historic American Engineering Record 1985:1–3; Bridgehunter.com 2021).

Hamilton City's role in the region's agricultural heritage was also established with the circa 1880-1905 construction of a primary irrigation canal (Main Canal) from the Sacramento River. William Semple Green, who was a surveyor and journalist, during this time began advocating organized irrigation in Colusa and Glenn Counties. California State Landmark No. 831 is located at the Hamilton City headwaters of the Main Canal, and marks the location that Green posted the state's first irrigation district water notice in 1883. The Main Canal is now owned and operated by the GCID, and continues to serve the area's agricultural needs (Office of Historic Preservation 2021a; Francis Heritage Services 1999).

Town of Dunnigan

Dunnigan originated with the settlement of J.S. Copp and John Wilson in 1853. A. W. Dunnigan, a U.S. postal worker, established a large barn that served as the Antelope Stage Depot. Henry Yarick, and Abial Barker settled there shortly after, with Yarick opening a hotel business in the developing town, naming it "Dunnigan's." G.B. Lewis opened the first store in the area in 1866.

The year 1876 saw the arrival of the Northern Railway, later the SPRR, which transformed the Antelope Stage Depot into the first community rail station. Initially named Antelope, the town of Dunnigan was first plotted in November 1876 and grew into a service center for the regional agricultural interests.

By 1909, eucalyptus groves were planted with the intention of using the wood for furniture. Ill-suited to the use, the lots were restructured as the Yolo Hardwoods Subdivision and home sites were sold. Dunnigan went on to host "Dust Bowl" refugees and transplants from the San Francisco Bay Area arrived in the years after World War II, with the aim of building retirement homes. In 1968, the construction of I-5 divided the Hardwoods neighborhood from Old Town. The Yolo County Master Plan in 1958 established the first formal planning goals for the community. As of the 2010 United States Census the community had a population of 1,416, with the community covering some 5.2 square miles (Gregory 1913:58; Yolo County 2013:1–2).

22.2.3. Methods for Identifying Cultural Resources

This section describes the methods used to identify cultural resources in the study area. Background research was conducted in compliance with CEQA and NEPA guidelines.

The confidential *Sites Reservoir Project Cultural Resources Report* (ICF 2021) was prepared to inform the Authority's CEQA and NEPA findings for cultural resources. The effort to identify cultural resources included review of state inventory records searches at the California Historical Resources Information Center (CHRIS), Authority and DWR records, Native American consultation and historical societies outreach, archival and public records research, previous archaeological field survey, and previous historical resources surveys and evaluations applicable to the study area. Consultation with Native American Tribes, historical societies, and other

interested parties is ongoing. Tribal consultation efforts under CEQA (California Assembly Bill 52) are provided in Chapter 23, *Tribal Cultural Resources*.

To supplement the previous studies, a new state inventory records search was conducted in 2020 through the CHRIS. Archaeologists and architectural historians used the information from the field studies and record searches—along with data from historical maps, aerial imagery, and county assessor’s parcel records—to conduct geographic information system (GIS) based desktop surveys to identify as-yet unrecorded cultural resources in the study area.

As previously indicated, the study area has 21,628 acres in the archaeological ADI and 487 county assessor’s parcels in the built environment ADI. According to records search results, a total of 19,237 acres and 8 parcels were surveyed previously. A total of 2,391 acres remains incomplete for pedestrian archaeological survey. Desktop review confirmed that of the 487 parcels, a total of 85 contain potentially significant historic built resources and have not been field surveyed. Future archaeological and architectural field surveys in the study area will be conducted at such time when access is made available to the Authority by the property owners. Chapter 3 provides further information regarding surveys and access.

Sacred sites are defined in Executive Order 13007 (May 24, 1996) as “any specific, discrete, narrowly delineated location on Federal land that is identified by an Indian tribe, or Indian individual determined to be an appropriately authoritative representative of an Indian religion, as sacred by virtue of its established religious significance to, or ceremonial use by, and Indian religion; provided that the tribe or appropriately authoritative representative of an Indian religion has informed the agency of the existence of such a site.” To date no sacred sites have been identified on Federal land, however Tribal consultations are ongoing, and their presence cannot be precluded.

22.2.4. Summary of Archaeological Resources in the Study Area

A total of 106 previously recorded potentially significant archaeological resources have been identified in the study area. This includes 51 early Native American sites, 31 post-Contact sites, and 24 multicomponent sites. At the time of the preparation of this RDEIR/SDEIS, 43 adequate (i.e., less than 20 years old with pedestrian survey transects spaced less than 98 feet [30 meters] apart) archaeological studies have been conducted on various sections of the study area. The largest inventory was of the inundation area, adjacent viewshed ridgeline buffer, and new access roads. This work was conducted during the 2001 through 2003 field seasons by the Archaeological Research Program at California State University, Chico (White et al. 2009). Of the 106 archaeological sites identified in the study area, one has been evaluated for NRHP eligibility (Site P-52-002146); however, the evaluation was based on the built environment component of the resource and therefore would still need to be evaluated under Criterion D of the NRHP and Criterion 4 of the CRHR.

The GIS-based historical map analysis identified 255 potential archaeological resources or areas with sensitivity for archaeological resources in the study area as depicted on post-Contact era topographical maps. These 255 potential archaeological resources (built architectural remains with archaeological potential) include 87 buildings or structures, 72 dirt road segments, 37 improved roads, 8 railroad segments, 7 levee/canal segments, 3 wells/modified springs, one

power line, and one cemetery. The 255 potential archaeological resources also include 39 topographic “mounds” that could be sensitive for early Native American resources. These potential resources are in addition to the 106 previously recorded archaeological resources and will be verified when surveys are conducted for those areas identified through the mapping analysis.

22.2.4.1. Archaeological Property Types

Early Native American Property Types

Early Native American archaeological properties defined for this analysis are divided into four functional types: resource collection and processing, habitation, ceremonial, and multi-use. Each of these functional types may include multiple types and assemblages of artifacts associated with specific human activities. Table 22-3a summarizes functional property types, examples of activities typically associated with them, and the artifacts and features typically associated with these activities. The examples presented in Table 22-3a represent the anticipated and known range of early Native American property types in the study area.

Table 22-3a. Early Native American Archaeological Property Types

Property Type	Activity Type	Constituents
Resource collection and processing	Milling (9 sites)	Bowl mortars, milling slabs, pestles, handstones, flaked stone, plant remnants
	Lithic production (12 sites)	Lithic cores, greater proportion of core reduction debitage relative to flake reduction debitage
	Animal butchery (no sites recorded)	Flaked stone, animal remains, broken shells
Habitation	Seasonal occupation site (10 sites)	Dietary remains representing a single season, ground and flaked stone
	Village site (17 sites)	Dietary remains reflecting multiple seasons, ground and flaked stone, midden soils, housepits, human burials
	Mound site (1 site)	Dietary remains reflecting multiple seasons, ground and flaked stone, midden soils, human burials; uniquely shaped due to long-term depositional history from human occupation and/or use
Ceremonial	Isolated human burials (no sites recorded)	Human burials, grave goods
	Ceremonial (1 site)	Clay figures, charmstones, shell ornaments, ritual objects
Multi-use	Multi-use (1 site)	Any combination of the above constituents, potentially separated by stratigraphic context

Post-Contact Archaeological Property Types

A post-Contact archaeological property, for the purposes of this analysis, is defined as an archaeological site that was formed after initial contact with Europeans, which occurred in the study area between 1,800 and 500 years ago in the study area. Post-Contact archaeological sites can encompass a wide range of resources and elements which are classified here in terms of their

function. Previous studies in the vicinity of the study area indicate uses such as land-based transportation of people and supplies, agricultural pursuits, and city and town development.

From what is known about the historical use of the area, it is assumed that six post-Contact archaeological property types have the potential to be present in the study area—architectural remains, infrastructure remains, agriculture and ranching remains, refuse, water conveyance system remains, and post-Contact Native American archaeological properties. These property types are summarized in Table 22-3b, which lists the artifacts and features that may be found in association with each property type.

Table 22-3b. Post-Contact Archaeological Property Types

Property Type	Features—Characteristics
Architectural Remains (11 sites)	Foundations —Brick alignments, concrete slabs, and footings or pilings
	Builder’s trenches and walls —Concrete, brick, or wood; in situ or collapsed
	Decking/planking —Wood boards, intact or collapsed Structure remains —Siding, framing, and other structural components; in situ or collapsed
	Floors —Concrete, wood, or tile
Infrastructure Remains (2 sites)	Utility lines —Alignments of sewer pipes, power lines, waterlines, pipes, or trenches; or pits/postholes associated with installation of these types of utilities
	Transportation routes —Roads, trails, railroad grades/tracks, bridges, vehicle parking or storage areas
Agriculture and Ranching Remains (10 sites)	Cultivation and livestock —Fallow fields, livestock watering and feeding holes or troughs, planting beds, and planting holes Defining spaces —Berms, fencing, corrals, and pathway alignments Work camp —Areas in which agricultural workers were housed and/or agricultural work was conducted; includes both archaeological components such as trash scatters, subsurface refuse deposits, foundations, and collapsed structures and built-environment components such as standing buildings, planted gardens, etc.
Refuse (6 sites)	Contents of hollow-filled features (pits, privies, and wells) —Discrete and bounded stratigraphic layers representing chronological sequence of events that occurred at the site
	Sheet refuse —Thin layer of refuse that may have accumulated over time, versus large discrete layers of refuse representing several events
	Dumps —Concentrated refuse that may represent a single refuse event or several events. Chronological sequence of several events may be represented horizontally rather than vertically Massive intentional fill —Industrial and structural debris, possibly combined with sediments, municipal refuse dumps, and unofficial community dump sites
Reclamation and Water Conveyance Remains (1 site)	Water conveyance —Irrigation ditches and canals (earthen, concrete/lined), check-dams, weirs, floodgates, and pumps Water containment —Levees and dams (rock, concrete, wooden)

Property Type	Features—Characteristics
Architectural Remains (11 sites)	Foundations —Brick alignments, concrete slabs, and footings or pilings
Post-Contact Native American Archaeological Properties (None recorded)	Archaeological sites —These sites are consistent with the subtypes of Native American Archaeological properties as described in Table 22-3a but may contain Non-Native American materials, trade goods, or technologies

Multicomponent Archaeological Properties

For the purposes of this analysis, multicomponent archaeological properties are characterized as containing both early Native American and post-Contact archaeological assemblages. There are a total of 24 multicomponent archaeological resources in the study area. These assemblages generally have no direct relation and reflect usage of the same landscape in different ways over time, such as early Native American habitation sites overlain by post-Contact era agricultural structural remains or dump sites.

22.2.5. Summary of Historic Built Resources in the Study Area

A total of 95 historic built resources have been identified in the study area. Three of the resources are presumed historically significant and eligible for the NRHP/CRHR for the purposes of the Project: the GCID Historic District, the CVP Historic District, and the Sacramento River Levees. A total of 85 resources have been identified that are potentially significant historic built resources and that have not been evaluated for NRHP/CRHR eligibility. A total of 7 resources have been evaluated for NRHP/CRHR eligibility and are recommended ineligible, and thus are not considered potentially significant.

22.2.5.1. Significant Historic Built Resources

The Authority and Reclamation recognize the historical significance of three historic built resources that have not been formally evaluated for NRHP/CRHR eligibility: the GCID Historic District, the CVP Historic District, and the Sacramento River Levees. The Authority and Reclamation have presumed NRHP/CRHR eligibility previously for the three historic built resources (Sites Project Authority and Bureau of Reclamation 2017:18-31, 18-32, and 18-34; Horizon 2019). These resources have historical significance, but it is beyond the scope of the Project to formally evaluate the NRHP/CRHR eligibility of the entirety of the resources. The resources' applicable NRHP/CRHR criteria, periods of significance, and historic property boundaries are also assumed for the purposes of this Project. Table 22-4 summarizes the three significant historic built resources.

Table 22-4. Significant Historic Built Resources

OHP Number	Resource Name	Counties	NRHP/CRHR status
P-11-000605	GCID Historic District	Glenn, Colusa	Presumed eligible
Not applicable	CVP Historic District	Glenn, Tehama, Colusa, Yolo	Presumed eligible

OHP Number	Resource Name	Counties	NRHP/CRHR status
Not applicable	Sacramento River Levees	Yolo	Presumed eligible

OHP = Office of Historic Preservation

Glenn-Colusa Irrigation District Historic District

The GCID's primary water conveyance structure in Glenn, Tehama, and Colusa Counties is the Main Canal. The canal extends from the Sacramento River intake at Hamilton City to the CBD output in Yolo County. The GCID Historic District is the earthen GCID Main Canal structure and its associated concrete components, including the head gate at Hamilton City and the gravitational siphons at Walker Creek, Willow Creek, and the Union Pacific Railroad crossing at Willows. Segments of the GCID Main Canal have been recorded in the study area near Willows and Hamilton City.

For the purposes of the Project, the resource has presumed NRHP/CRHR eligibility under Criteria A/1 for association with significant local irrigation district development in Northern California (Sites Project Authority and Bureau of Reclamation 2017:18-32; Horizon 2019; State Historic Preservation Officer 2019). As such, the GCID Historic District boundary is the footprint of the GCID Main Canal structures, and its period of significance is circa 1887 to 1920, when it was designed and constructed. The GCID Historic District's character defining features conveying its historical significance are its location in a generally rural and agricultural setting, the canal's alignment, and the resource's continued use as, and ability to function as, a gravitational water conveyance structure providing water to the GCID service area.

The GCID Union Pacific Railroad Siphon is a GCID Main Canal structure that supports a railroad crossing in Willows in Glenn County. The structure is a contributor to the GCID Historic District under NRHR/CRHR Criteria A/1. The structure was also individually evaluated and recommended eligible for listing in the NRHP/CRHR under Criteria A/1 for its association with the GCID, and under Criteria C/3 for its distinctive design and construction. The resource's character-defining features conveying its historical significance include its location on the GCID Main Canal, its board-formed concrete design and construction, and its continued use and ability to function as a gravitational water conveyance siphon and as a railroad support spanning the canal.

The GCID head gate is a GCID Main Canal structure on the Sacramento River at Hamilton City in Glenn County. The structure is a contributor to the GCID Historic District. The structure was also individually evaluated and recommended ineligible for listing in the NRHP/CRHR under any criteria.

Central Valley Project Historic District

The CVP is the largest water delivery system in the state of California, extending from Shasta Reservoir in the north to the Kern River in the south. The CVP transformed California's means of managing its water resources, united federal and state policymakers and funding sources, and sustained California's agricultural economy. The CVP includes 20 dams and reservoirs, 11 powerplants, and 500 miles of major canals to provide water for irrigation and ecological uses throughout the Sacramento and San Joaquin Valleys and the San Francisco Bay area. The earliest

CVP infrastructure includes Shasta Dam and other water control facilities that were built in the 1930s and 1940s. Many of the study area's local agency water infrastructure is tied to the CVP.

The CVP Historic District includes components of the CVP's Sacramento Canals Project that are located in the study area: the TC Canal and Funks Reservoir. The CVP's RBDD, Corning Canal, and Maxwell/Tehama Colusa Intertie components are located adjacent to and outside of the study area near Red Bluff and Maxwell. The northern extent of the CVP's Sacramento Canals Project system was planned and constructed in the mid-20th century. Funks Reservoir and the southern extent of the TC Canal were constructed by 1975. The RBPP, which was built in 1995, is located in the study area but is not a contributor to the CVP Historic District because it is not a component of the CVP.

For the purposes of the Project, the resource has presumed NRHP/CRHR eligibility under Criteria A/1 in association with significant water resources development in California (Sites Project Authority and Bureau of Reclamation 2017:18-31; Horizon 2019). As such, the Sacramento Canals Project's boundary in the study area is the footprint of its components and its period of significance is circa 1940 to 1975, when it was designed and constructed. The resource's character-defining features conveying its historical significance are the location of its canals, dams, and regulating facilities; the setting of these structures in the northern Sacramento Valley's agricultural and rural community landscape; and the continued functionality of these structures to store and convey water. In contrast to earlier CVP structures such as Shasta Dam, the Sacramento Canals Project was built later in the 20th century and does not rise to the level of historical significance under Criteria C/3 for its design and engineering.

With respect to the components of the CVP Sacramento Canals Project that are located in or adjacent to the study area, the RBDD has been evaluated individually and found ineligible for the NRHP; however, the dam structure is a contributor to the CVP Historic District.

Sacramento River Levees

The Sacramento River Levees were built in the early 20th century during an era of major infrastructure improvement and development for flood control on the river. The levees are an engineered structure built with uniform rock and soil layers. In the study area, the levees face the Sacramento River in an area that historically saw heavy traffic by river, rail, and automobile.

Beginning in the 19th century, flood management and land reclamation projects were undertaken to make the Sacramento River floodplain permanently habitable while supportive of the region's maritime navigation and agricultural economies. In the 1850s and 1860s, reclamation districts and municipalities constructed a series of flood protection levees that were continually improved by private and municipal agents, and that facilitated city and railway developments. By 1880 William Hammond Hall, California's first State Engineer, had submitted a report on irrigation and flood control to the state legislature that outlined the impact of hydraulic mining on the natural environment and called for the creation of centralized water policy and management. In 1911, the U.S. Army Corps of Engineers (USACE) California Debris Commission presented a plan to Congress to unify northern California's levees and drainages. The 1909 Sacramento River Flood Control Project (SRFCP) plan reported on a need to standardize and expand the existing levee system. This effort entailed raising the height of existing levees, building new

levees, and adding weirs and bypass structures to assist in flood control. By 1920, Yolo and Sacramento Counties had constructed substantial riverfront levees in coordination with federal programs and the USACE.

The entire Sacramento River Levees resource has potential historical significance as an important water control structure for Yolo County. The Sacramento River Levees in its entirety has yet to be evaluated for listing in the NRHP/CRHR. Because the study area includes less than 0.25 mile of the Sacramento River Levees, it is beyond the scope of the Project to evaluate the entire resource. For the purposes of the Project, the resource has presumed NRHP/CRHR eligibility under Criteria A/1 in association with significant flood control management in California (Sites Project Authority and Bureau of Reclamation 2017:18-34; Horizon 2019). The resource's historic property boundary is the footprint of the levees structure and its period of significance is 1910 to 1930, when it was constructed. The resource's character-defining features conveying its historical significance are its alignment and setting on the Sacramento River, and continued use as a functioning flood control structure on the Sacramento River for which it is associated historically.

22.2.5.2. Ineligible Historic Built Resources

Table 22-5 lists the historic built resources that were evaluated for NRHP/CRHR eligibility on DPR 523-Series forms and recommended ineligible. The Authority finds these are not historic resources within the meaning of Section 15064.5(a) of the CEQA Guidelines (Sites Project Authority and Bureau of Reclamation 2017:Table18-1; Horizon 2019; State Historic Preservation Officer 2019). The Diamond Forest Products Mill has an Office of Historic Preservation (OHP) Primary Number and has records on file at the CHRIS. The other resources have not been submitted to the CHRIS because of landowner sensitivity.

Table 22-5. Ineligible Built Environment Resources

OHP Number	Resource Name	County	NRHP/CRHR status
P-52-002146	Diamond Forest Products Mill	Tehama	Ineligible
Not Applicable	3383 & 3418 Huffmaster Road	Colusa	Ineligible
Not Applicable	3546 Huffmaster Road	Colusa	Ineligible
Not Applicable	Edward Owens Farmstead	Colusa	Ineligible
Not Applicable	Shirley Jensen Farmstead	Colusa	Ineligible
Not Applicable	4790 & 4792 McDermott Road	Colusa	Ineligible
Not Applicable	4799 McDermott Road	Colusa	Ineligible

OHP = Office of Historic Preservation

22.2.5.3. Potentially Significant Historic Built Resources

A total of 85 potentially significant historic built resources have been identified in the study area. These resources include buildings, structures, and districts identified as part of previous studies or new desktop research. This category has commercial, residential, farm, and ranch buildings and bridge, railroad, electrical transmission, and water conveyance structures. The potentially significant historic built resources that have been identified in the study area are tabulated by Project component in Section 22.3.2, and further tabulated by Project alternatives in Section 22.4 under Impact CUL-1.

22.3 Methods of Analysis

22.3.1. Thresholds of Significance

This section describes the criteria and thresholds used to identify significant impacts on CEQA historical resources and adverse effects on NRHP historic properties. For further details including definitions, see Sections 4A.18.1, *Federal Policies and Regulations*, and 4A.18.2, *State Policies and Regulations*.

Due to federal funding for the Project, a National Historic Preservation Act (NHPA) Section 106 cultural resources consultation process with interested tribes and the State Historic Preservation Officer (SHPO) is being undertaken. The Project's CEQA and NEPA processes parallel the NHPA Section 106 process and considerations for cultural resources. For compliance with NEPA, an NHPA Section 106 finding of adverse effect will be considered a NEPA substantial adverse effect.

A significant impact would occur if the Project would cause a substantial adverse change to the significance of a built environment or archaeological historical resource, or a unique archaeological resource. Effects on built environment or archaeological historical resources and unique archaeological resources are considered significant for purposes of CEQA if the alternatives would do any of the following.

- Demolish or materially alter the qualities that justify the resource for inclusion or eligibility for inclusion in the CRHR (CEQA Guidelines Section 15064.5[b][2][A],[C]).
- Demolish or materially alter the qualities that justify the inclusion of the resource in a local register (CEQA Guidelines Section 15064.5[b][2][B]) or its identification as an historical resource in a survey meeting the requirements of California Pub. Resources Code Section 5024.1(g).
- Demolish or materially impair the characteristics that allow a site to qualify as a unique archaeological resource (California Pub. Resources Code Section 21083.2[g]).

Under NHPA Section 106, an undertaking may have an *adverse effect* when the effect on a built environment or archaeological historic property may diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. NHPA Section 106 adverse effects on historic properties include, but are not limited to:

- Physical destruction or damage to all or part of the property;
- Alteration of a property that is not consistent with the Secretary of Interior (SOI) standards for the treatment of historic properties and applicable guidelines;
- Removal of the property from its historic location;
- Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;
- Introduction of visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features; and

- Neglect of a property resulting in its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe.

In addition, a significant impact would occur if the Project would disturb any human remains, including those interred outside of formal cemeteries. Sections 4A.18.1 and 4A.18.2 provide information on the Native American Graves and Repatriation Act and California State Law Governing Human Remains, respectively.

22.3.2. Resources Occurrence by Project Components

This section presents information about the Project components by alternative, including the number of built and archaeological resources in the study area and total surveyed acres (Tables 22-6a and 22-6b). Resources that are located both within and outside of the inundation areas are represented in both categories.

Table 22-6a. Alternatives 1 and 3 Project Components and Cultural Resources

Project Component	Total Significant Built Resources	Total Potentially Significant Built Resources	Total Significant Archaeological Resources	Total Potentially Significant Archaeological Resources	Total Acres/ Total Acres Surveyed
Sacramento River Diversion and Conveyance to Regulating Reservoirs	1 <i>GCID Historic District: Main Canal, Head Gate, and UPRR Siphon</i>	10	0	1 <i>ENA: 0 PC: 0 M/C: 1</i>	81.55/ 6.0
Sites Reservoir and Related Facilities (Outside of Construction Inundation Area)	1 <i>CVP Historic District: TC Canal</i>	5	0	15 <i>ENA: 4 PC: 7 M/C: 4</i>	2,129.1/ 1,714.2
Sites Reservoir: Construction Inundation Area (Also Operations Drawdown and Fluctuation Area)	0	17	0	75 ENA: 37 PC: 22 M/C: 16	13,065.95/ 12,337.95
Regulating Reservoirs and Conveyance Complex (Outside of Construction)	2 <i>CVP Historic District: TC Canal and Funks Reservoir</i>	4	0	3 <i>ENA: 3 PC: 0 M/C: 0</i>	980.45/ 306.85

Project Component	Total Significant Built Resources	Total Potentially Significant Built Resources	Total Significant Archaeological Resources	Total Potentially Significant Archaeological Resources	Total Acres/ Total Acres Surveyed
<i>Inundation Areas)</i>	<i>GCID Historic District: Main Canal</i>				
TRR East: Construction Inundation Area <i>(Also Operations Drawdown and Fluctuation Area)</i>	0	1	0	0	98.0/ 0.0
Conveyance to the Sacramento River	1 <i>CVP Historic District: TC Canal</i>	2	0	0	108.45/ 1.35
Recreation Areas and Facilities	0	0	0	2 <i>ENA: 2 PC: 0 M/C: 0</i>	794.5/ 645
Roads and Bridge	2 <i>CVP Historic District: TC Canal</i> <i>GCID Historic District: Main Canal</i>	5	0	0	83.5/ 11.35
Project Buffer (100 ft)	2 <i>CVP Historic District: TC Canal, Funk Reservoir</i> <i>GCID Historic District: Main Canal, Head Gate, UPRR Siphon</i>	65	0	32 <i>ENA: 19 PC: 4 M/C: 9</i>	2,896.25/ 1,523.85

Notes:

TRR: Terminating Regulating Reservoir

CVP: Central Valley Project
 GCID: Glenn Colusa Irrigation District
 UPRR: Union Pacific Railroad
 TC: Tehama-Colusa
 ENA: Early Native American
 PC: Post-Contact
 M/C: Multicomponent

Table 22-6b. Alternative 2 Project Components and Cultural Resources

Project Component	Total Significant Built Resources	Total Potentially Significant Built Resources	Total Significant Archaeological Resources	Total Potentially Significant Archaeological Resources	Total Acres/ Total Acres Surveyed
Sacramento River Diversion and Conveyance to Regulating Reservoirs	1 <i>GCID Historic District: Main Canal, Head Gate, and UPRR Siphon</i>	4	0	1 <i>ENA: 0 PC: 0 M/C: 1</i>	30.66/ 0.95
Sites Reservoir and Related Facilities <i>(Outside of Construction Inundation Area)</i>	0	2	0	5 <i>ENA: 0 PC: 4 M/C: 1</i>	802.91/ 734.48
Sites Reservoir: Construction Inundation Area <i>(Also Operations Drawdown and Fluctuation Area)</i>	0	17	0	72 ENA: 34 PC: 21 M/C: 17	13,065.92/ 12,337.98
Regulating Reservoirs and Conveyance Complex <i>(Outside of Construction Inundation Areas)</i>	2 <i>CVP Historic District: TC Canal and Funks Reservoir</i> <i>GCID Historic District: Main Canal</i>	3	0	3 <i>ENA: 3 PC: 0 M/C: 0</i>	922.98/ 299.70
TRR West: Construction Inundation Area	0	1	0	0	100.85/ 0

Project Component	Total Significant Built Resources	Total Potentially Significant Built Resources	Total Significant Archaeological Resources	Total Potentially Significant Archaeological Resources	Total Acres/ Total Acres Surveyed
<i>(Also Operations Drawdown and Fluctuation Area)</i>					
Conveyance to the Sacramento River	2 <i>CVP Historic District: TC Canal</i> <i>Sacramento River Levees</i>	5	0	0	176.84/ 1.36
Recreation Areas and Facilities	0	0	0	2 <i>ENA: 2</i> <i>PC: 0</i> <i>M/C: 0</i>	739.89/ 590.07
Roads and Bridge	2 <i>CVP Historic District: TC Canal and Funks Reservoir</i> <i>GCID Historic District: Main Canal</i>	8	0	26 <i>ENA: 14</i> <i>PC: 5</i> <i>M/C: 7</i>	1,771.38/ 1,091.27
Project Buffer (100 ft)	3 <i>CVP Historic District: TC Canal, Funks Reservoir</i> <i>GCID Historic District: Main Canal, Head Gate, UPRR Siphon</i> <i>Sacramento River Levees</i>	71	0	44 <i>ENA: 23</i> <i>PC: 6</i> <i>M/C: 15</i>	3,306.27/ 1,628.77

Notes:

TRR: Terminating Regulating Reservoir
 CVP: Central Valley Project
 GCID: Glenn Colusa Irrigation District
 UPRR: Union Pacific Railroad
 TC: Tehama-Colusa
 ENA: Early Native American
 PC: post-Contact
 M/C: multicomponent

22.4 Impact Analysis and Mitigation Measures

This section presents the impacts analysis and mitigation measures for cultural resources in the study area. See Section 22.3.1 for regulatory thresholds and definitions. Impact CUL-1 addresses Project impacts on historic built resources and covers CEQA historic resources and Section 106 historic properties of the built environment. Impact CUL-2 addresses Project impacts on archaeological resources and encompasses archaeological CEQA historic resources and Section 106 historic properties, as well as CEQA unique archaeological resources. Impact CUL-3 addresses human remains, including those that may be located outside of marked cemeteries.

Impact CUL-1: Cause a substantial adverse change in the significance of a historic built resource.

No Project Alternative

Under the No Project Alternative, no new facilities would be constructed or operated. Any historic built resources present in the study area would not be affected. The GCID Main Canal, CVP Historic District, and Sacramento River Levees that currently exist would continue to operate and perform their existing functions. It is expected they would be maintained by existing practices.

Significance Determination

Under the No Project Alternative, no new facilities would be constructed or operated, and there would be no temporary or permanent impacts due to the Project. Therefore, the No Project Alternative would have no impact/no effect on historic built resources.

Alternatives 1 and 3

The GCID Main Canal, CVP Historic District, and a total of 80 potentially significant historic built resources are located in the Alternatives 1 and 3 study area.

Construction

GCID Historic District

The GCID Main Canal head gate is located at the diversion at Hamilton City. Alternatives 1 and 3 would construct a new head gate at this location and would preserve the existing head gate in place for continued use as a bridge over the GCID Main Canal. This activity would not change

the qualities that characterize the head gate as a contributing element to the GCID Main Canal resource.

At the diversion at Hamilton City and on the GCID Main Canal alignment between Willows and the TRR East, Alternatives 1 and 3 would increase the freeboard of the canal in several locations. The access roads along the canal at various locations would also be improved. Construction would not physically change the canal's location, setting, or ability to convey water and thus would not impair its historic integrity.

The GCID Main Canal siphons at Willow Creek and Walker Creek would be replaced with new siphons, and the siphon at the GCID Union Pacific Railroad crossing would be altered to improve its capacity. The existing siphons support gravitational water conveyance, which is a feature that characterizes the GCID Main Canal resource and conveys its historical significance. Siphon-related construction would not physically change the resource's alignment or setting, and siphon improvements would continue to support gravitational water conveyance at those locations.

The GCID Main Canal components are located at the TRR East. Alternatives 1 and 3 would construct the TRR East adjacent to the canal structure. A conveyance connection between the TRR East and the GCID Main Canal would also be constructed, and a new concrete bridge would be installed on the canal structure. New bridge construction would physically change the canal and its setting during bridge construction, and thus could impair its historic integrity.

CVP Historic District

The CVP Historic District's TC Canal and Funks Reservoir components are located in the study area at two locations.

Two CVP Historic District components are located in the study area near Maxwell: TC Canal and Funks Reservoir. Alternatives 1 and 3 would upgrade the TC Canal and Funks Reservoir and install new facilities in the Funks Reservoir complex. The construction activities would physically alter the CVP Historic District components. TC Canal and Funks Reservoir improvements and new structures would not alter the resource's setting, location, or ability to continue to function, and thus would not impair the qualities that convey its significance.

One CVP Historic District component, the TC Canal, is located in the study area west of Dunnigan in Yolo County. Alternatives 1 and 3 would conduct upgrades on the TC Canal and connect it to a new Dunnigan Pipeline that would convey Sites Reservoir water to the CBD outlet. The construction of these upgrades would physically alter the TC Canal. The TC Canal would continue to convey water from the Sacramento River in Tehama County to its discharge in Yolo County. Construction alterations would physically change the TC Canal but would not change the resources' setting, location, or ability to continue to function, and thus would not impair the qualities that convey its significance.

Potentially Significant Built Resources

Potentially significant built resources are located in the inundation areas for Sites Reservoir and TRR East under Alternatives 1 and 3 (Table 22-7a). These include a total of 18 resources, including a farm and 17 residences. The construction and inundation of the Sites Reservoir and

TRR East would permanently change any resources in those areas because the resources would be destroyed by inundation.

Table 22-7a. Summary of Potentially Significant Built Resources Types Within or Outside of the Alternatives 1 and 3 Inundation Areas

Historic Built Resource Type	Potentially Significant Resources in Study Area	Within Reservoir Inundation Areas	Outside Reservoir Inundation Areas
Commercial	4	0	4
Residential	62	17	45
Farm or Ranch	9	1	8
Bridge	1	0	1
Water Conveyance	1	0	1
Electrical Transmission	2	0	2
Railroad	1	0	1
Total	80	18	62

Potentially significant built resources are located in the study area outside of the Alternatives 1 and 3 reservoir inundation areas (Table 22-7a). These include a total of 62 resources, including 8 ranches and farms, 4 commercial structures, 45 residences, 2 transmission lines, a railroad, a canal, and a bridge. Construction activities for Alternatives 1 and 3 that would occur in the portions of the study area outside of the reservoir inundation areas would result in permanent and temporary impacts associated with upgrading or building water conveyance and storage, roads, recreation areas, and electrical transmission infrastructure. These construction activities would physically change potentially significant built resources, or alter their location, setting, and use because all of the construction activities outside of the inundation areas have the potential to impair the resources' qualities that convey their significance.

Operations

Operation of Alternative 1 or 3 would not change the qualities that convey the historical significance of the GCID Historic District or the CVP Historic District because these facilities would continue to convey water as they do under existing conditions and protect lands from flooding. Further, operations under Alternative 1 or 3 would not physically change any of the potentially significant built resources in the study area.

CEQA Significance Determination and Mitigation Measures

Construction activities in the Sites Reservoir and TRR East inundation areas for Alternatives 1 and 3 would result in impacts on potentially significant historic built resources including 18 potentially significant resources. These areas would be inundated and any resources located in these areas would be destroyed. The Authority will implement Mitigation Measure CUL-1.1 to evaluate the significance of historic built resources located in the inundation areas and describe their current conditions so that the qualities that may convey their significance may be treated. If historic built resources are determined to be significant, the Authority will implement Mitigation Measure CUL-1.4 to perform resource-specific treatment procedures for the significant historic built resources. This measure will preserve some historical values of the resources, for instance

by recording architectural data or relocating structures. Implementing Mitigation Measure CUL-1.4 would reduce the impact from Project construction on significant historic built resources in the inundation areas, but the impact would remain significant because resources identified as significant per Mitigation Measure CUL-1.1 would be destroyed.

Construction activities for Alternatives 1 and 3 that would occur outside the inundation areas for Sites Reservoir and TRR East would result in impacts on the GCID Historic District's Main Canal, the CVP Historic District's TC Canal and Funks Reservoir, and potentially significant historic built resources (including 62 known potentially significant resources). These areas would not be inundated and the resources would not be destroyed. Construction activities have the potential to physically change these resources or their settings and to materially alter the qualities that may convey their significance. The Authority will implement Mitigation Measure CUL-1.1 to evaluate the significance of historic built resources located outside the inundation areas for Sites Reservoir and TRR East and describe their current conditions so that the qualities that may convey their significance may be avoided, protected, or treated.

If significant historic built resources are determined to be present outside the inundation areas through application of Mitigation Measure CUL-1.1, the Authority will implement Mitigation Measure CUL-1.2 to incorporate feasible avoidance measures in the design of Alternatives 1 and 3 (e.g., moving a new road alignment) to avoid significant historic built resources. Avoidance is the primary means of mitigating impacts on significant historic built resources located outside of the inundation areas, and application of this measure would reduce the impact on significant built resources located outside of the inundation areas to less than significant.

If significant historic built resources outside the inundation areas cannot be feasibly avoided through the application of Mitigation Measure CUL-1.2, the Authority will apply Mitigation Measure CUL-1.3 to implement feasible resource-specific protection measures for significant historic built resources, such as installing exclusion fencing around them during construction. Protection is the secondary means of mitigating impacts to significant historic built resources located outside of the inundation areas, and application of this measure would reduce the impact to significant built resources located outside of the inundation areas to less than significant because the qualities that qualify a resource as a significant historic built resource would be protected and would not be impaired.

For significant historic built resources outside the inundation areas, if after implementation of Mitigation Measures CUL-1.1 through CUL-1.3, the qualities that qualify a resource as a significant historic built resource would still be impaired, the Authority will implement Mitigation Measure CUL-1.4. The resource-specific treatment procedures would preserve some historical values of the significant built resource, for instance by recording architectural data or interpreting historical information for the public. Application of Mitigation Measure CUL-1.4 would reduce the impact to resources located outside of the inundation areas to less than significant because the qualities that would be impaired by the Project would be captured and made available for continued public understanding of the resource.

Operation of Alternative 1 or 3 would have no impact on historic built resources because operations would not change the qualities that convey the historical significance of the GCID Historic District or the CVP Historic District and would not physically change any of the

potentially significant built resources in the study area. Impacts would not occur during the operation of Alternative 1 or 3.

Mitigation Measure CUL-1.1: Identify Significant Built Resources

The Authority will implement significant built resources identification in the study area. The work will be conducted by an SOI-qualified architectural historian, and the actions listed below will be completed prior to construction. The Authority will document the results in a confidential technical study.

- Relocate and map previously recorded resources potentially significant historic built resources.
- Locate and map potentially significant historic built resources in areas that have not been accessible previously.
- Evaluate the NRHP/CRHR eligibility of recorded historic built resources.
- Assess resource-specific impacts to significant historic built resources for resources that are NRHP/CRHR eligible and would be affected.

Mitigation Measure CUL-1.2: Avoid Significant Built Resources

The Authority will avoid significant built resources in the study area by performing the tasks listed below. The work will be conducted in consultation with an SOI-qualified architectural historian.

- The Authority will develop feasible Project design specifications to avoid significant historic built resources.
- The Authority will develop and implement feasible Project construction protocols to avoid significant historic built resources, including workers' cultural resources sensitivity training, prior to and during construction activities.
- The Authority will develop and implement feasible Project operations protocols that avoid significant historic built resources during operation activities.

Mitigation Measure CUL-1.3: Protect Significant Built Resources

The Authority will develop and implement protocols to protect significant built resources in the study area. The work will be conducted in consultation with an SOI-qualified architectural historian.

- The Authority will develop feasible protection measures for significant historic built resources prior to and during construction activities and during operation activities.
- The Authority will develop resource-specific protection plans that involve measures such as designating significant built resources to be protected as Environmentally Sensitive Areas, installing exclusion fencing, conducting historic built resource monitoring where construction or operations would be in the vicinity of a known

significant built resource, and treating impairments that may be identified through monitoring.

Mitigation Measure CUL-1.4: Significant Historic Built Resources Treatment

The Authority will develop and implement significant built resources treatments in the study area. Prior to construction, the Authority will develop resource-specific treatment plans in consultation with interested parties who are associated with or identify with the significant historic built resources and with an SOI-qualified architectural historian. These resource-specific treatment plans may be Historic American Buildings Survey recordation, interpretive exhibits at recreation areas, educational modules for public schools, NRHP/CRHR nominations, or relocation of historic structures.

The Authority will implement the treatment plans prior to and during construction, and following construction, depending on the details of the resource-specific treatment, in consultation with an SOI-qualified architectural historian. Resource-specific treatments may require ongoing work during and after construction.

NEPA Conclusion

The construction effects of Alternatives 1 and 3 would be the same as described above for CEQA. Construction of Alternative 1 or 3 would result in the inundation, destruction, alteration, or impairment of the quality of significant historic built resources as compared to the No Project Alternative. Implementation of Mitigation Measures CUL-1.1 through CUL-1.4 would reduce effects; however, construction would result in a substantial adverse effect on historic built resources within the inundation areas of Sites Reservoir and TRR East. The operation effects of Alternatives 1 and 3 would be the same as described above for CEQA. Operation of Alternative 1 or 3 would not change the qualities that convey the historical significance of the GCID Historic District or the CVP Historic District and would not physically change any of the potentially significant built resources as compared to the No Project Alternative. There would be no operation effects on significant historic built resources.

Alternative 2

The GCID Historic District, CVP Historic District, Sacramento River Levees, and potentially significant historic built resources (including 85 known potentially significant resources) are located in the Alternative 2 study area. Compared to Alternatives 1 and 3, Alternative 2 includes construction of the South Road along the southern end of the Sites Reservoir, extension of the Dunnigan Pipeline from the CBD to the Sacramento River Levees, TRR West instead of TRR East, and a smaller Sites Reservoir (i.e., smaller inundation area).

Construction

GCID Historic District

The GCID Historic District is located in the Alternative 2 study area and would have the same construction impacts as Alternatives 1 and 3 related to the head gate, the siphons, and the road improvements. GCID Historic District components are located at the TRR West location, as opposed to the TRR East location under Alternatives 1 and 3. Construction of TRR West

adjacent to the GCID Main Canal and a conveyance connection between the TRR West and the GCID Main Canal would physically change the canal, which could impair its historic integrity.

CVP Historic District

The CVP Historic District is located in the Alternative 2 study area and has the same description as Alternatives 1 and 3 and same construction impacts as described above for these alternatives.

Sacramento River Levees

The Sacramento River Levees is in Yolo County at the eastern end of the Dunnigan Pipeline where the Sacramento River discharge would be constructed. The construction of the discharge structure would physically alter the levee structure and thus could impair its integrity.

Potentially Significant Built Resources

Potentially significant built resources are located in the inundation areas for the Sites Reservoir and TRR West under Alternative 2 (Table 22-7b). These include a total of 18 resources, including 1 farm, 16 residences, and a transmission line. Alternative 2 would construct two new reservoirs and permanently inundate the reservoirs, and these activities would permanently change any resources in those areas because the resources would be destroyed by inundation, as described for Alternatives 1 and 3.

Table 22-7b. Summary of Potentially Significant Built Resources Types Within or Outside of the Alternative 2 Inundation Areas

Historic Built Resource Type	Potentially Significant Resources in Study Area	Within Reservoir Inundation Areas	Outside Reservoir Inundation Areas
Commercial	4	0	4
Residential	64	16	48
Farm or Ranch	11	1	10
Bridge	1	0	1
Water Conveyance	2	0	2
Electrical Transmission	2	1	1
Railroad	1	0	1
Total	85	18	67

Potentially significant built resources are located in the study area outside of the Alternative 2 reservoir inundation areas (Table 22-7b). These include a total of 67 resources, including 10 ranches and farms, 4 commercial structures 48 residences, transmission lines, a railroad, a canal, a levee, and a bridge. The types of construction activities that would result in permanent and temporary impacts on potentially significant built resources for Alternative 2 would be the same as those described for Alternatives 1 and 3. These construction activities would physically change potentially significant built resources, or alter their location, setting, and use because all of the construction activities outside of the inundation areas have the potential to impair the resources' qualities that convey their significance.

Operations

Operation of Alternative 2 would not change the qualities that convey the historical significance of the GCID Historic District or the CVP Historic District or the Sacramento River Levees because these facilities would continue to convey water as they do under existing conditions and protect lands from flooding. Further, operations under Alternative 2 would not physically change any of the potentially significant built resources.

CEQA Significance Determination

Alternative 2 would result in construction impacts on the potentially significant built resources including 18 potentially significant resources that are located in the reservoir inundation areas, and the impacts would be similar to Alternatives 1 and 3 because the types of resources are the similar and the total number of resources is the same. Application of Mitigation Measures CUL-1.1 through CUL-1.4 would reduce the impacts, but impacts would remain significant on those resources identified as significant per Mitigation Measure CUL-1.1 because they would be destroyed. Impacts would be significant and unavoidable.

Alternative 2 would result in construction impacts on historic built resources that are located outside of the reservoir inundation areas, including the GCID Historic District, CVP Historic District, and potentially significant built resources including 67 potentially significant resources, and the impacts would be similar to Alternatives 1 and 3 because the types of resources are the same and would be affected in similar ways. Significant impacts would be reduced to less than significant with Mitigation Measures CUL-1.1 through CUL-1.4 because the resources would not be inundated and would not be destroyed.

In contrast to Alternatives 1 and 3, Alternative 2 would also result in construction impacts on the Sacramento River Levees because construction activities would physically alter the levee structure. The Authority will implement Mitigation Measure CUL-1.1 to evaluate and describe the resource's current conditions so that the qualities that convey its significance may be avoided, protected, or treated. The Authority will implement Mitigation Measure CUL-1.2 to incorporate feasible avoidance measures in the design of Alternative 2 (e.g., moving a new road alignment) to avoid the resource. Avoidance is the primary means of mitigating impacts on significant historic built resources located outside of the inundation areas, and application of this measure would potentially reduce the impact to less than significant. If the resource cannot be feasibly avoided through the application of Mitigation Measure CUL-1.2, the Authority will apply Mitigation Measure CUL-1.3 to implement feasible resource-specific protection measures, such as installing exclusion fencing around the resource during construction. Protection is the secondary means of mitigating impacts to significant historic built resources located outside of the inundation areas, and application of this measure would potentially reduce the impact to less than significant. If the resource cannot be feasibly avoided or protected, the Authority will implement Mitigation Measure CUL-1.4. The resource-specific treatment procedures would preserve some historical values of the resource, for instance by recording architectural data. Application of Mitigation Measure CUL-1.4 would reduce the impact to the resource to less than significant because the resource would not be destroyed.

Operation of Alternative 2 would have no impact on historic built resources because operations would not change the qualities that convey the historical significance of the GCID Historic

District or the CVP Historic District or the Sacramento River Levees and would not physically change any of the potentially significant built resources in the study area. Impacts would not occur during the operation of Alternative 2.

NEPA Conclusion

The construction effects of Alternative 2 would be the same as described above for CEQA. Construction of Alternative 2 would result in the inundation, destruction, alteration, or impairment of the quality of significant historic built resources, including the Sacramento River Levees, as compared to the No Project Alternative. Implementation of Mitigation Measures CUL-1.1 through 1.4 would reduce effects; however, construction would result in a substantial adverse effect on built environment historic properties within the inundation areas of Sites Reservoir and TRR West. The operation effects of Alternative 2 would be the same as described above for CEQA. Operation of Alternative 1 or 3 would not change the qualities that convey the historical significance of the GCID Historic District or the CVP Historic District and would not physically change any of the potentially significant built resources as compared to the No Project Alternative. There would be no operations effects on significant historic built resources.

Impact CUL-2: Cause a substantial adverse change in the significance of an archaeological resource.

No Project Alternative

Under the No Project Alternative, the Sites Reservoir and associated facilities would not be built and there would be no ground disturbing activities associated with the alternatives. Ground disturbing activities could occur within the study area associated with existing land use practices that are already occurring (e.g., agricultural practices).

Significance Determination

Under the No Project Alternative, no new facilities would be constructed or operated, and there would be no temporary or permanent impacts due to the Project. Therefore, the No Project Alternative would have no impact/no effect on archaeological resources.

Alternatives 1 and 3

Potentially significant archaeological resources, including 87 identified in previous surveys, are located in the Alternatives 1 and 3 study area.

Construction

Construction of the Sites Reservoir and associated facilities under Alternatives 1 and 3 has the potential to affect 87 known potentially significant archaeological resources. These consist of 42 early Native American, 27 post-Contact, and 18 multicomponent sites. Of these 86 resources, 66 are located within the Sites Reservoir and TRR East inundation areas, consisting of 32 early Native American, 21 post-Contact, and 13 multicomponent sites. The 66 resources located in the inundation areas would be affected due to construction of the reservoir. Tables 22-8 and 22-9 provide summaries of the sites located in the inundation areas and outside of the inundation areas.

Table 22-8. Summary of Early Native American Archaeological Property Types Within or Outside of the Alternative 1 and 3 Inundation Areas

Property Type	Activity Type	Within Inundation Areas	Outside of Inundation Areas
Resource collection and processing	Milling	7	2
	Lithic production	5	2
	Animal butchery	0	0
Habitation	Seasonal occupation site	8	1
	Village site	11	4
	Mound site	0	0
Ceremonial	Isolated human burials	0	0
	Ceremonial	1	0
Multi-use	Multi-use	0	1

Table 22-9 Summary of Post-Contact Archaeological Property Types Within or Outside of the Alternative 1 and 3 Inundation Areas

Property Type	Within Inundation Areas	Outside of Inundation Areas
Architectural Remains	8	1
Infrastructure Remains	2	0
Agriculture and ranching remains	5	2
Refuse	3	3
Reclamation and water conveyance remains	1	0
Post-Contact Native American archaeological properties	0	0
Cemetery	2	0

The potentially significant archaeological resources in the study area that are located outside the reservoir inundation areas have the potential to be affected due to ground disturbance associated with construction activities (e.g., establishing staging areas, grading, and constructing roads).

Operations

Operations-related activities that could affect potentially significant archaeological resources under Alternative 1 or 3 consist fluctuating water surface elevations (WSE) within the Sites Reservoir and TRR East. Fluctuating WSE can cause erosion, which could affect known potentially significant archaeological resources, as well as expose previously unknown potentially significant archaeological resources that are buried in the inundation areas. Archaeological resources that are submerged below the fluctuating WSE zones may also erode and could be destroyed or damaged due to water pressure and movement. As mentioned above, 66 potentially significant archaeological resources have been identified within the inundation

areas and all 66 resources and any newly discovered resources exposed during fluctuation of WSE would be affected by the operation of Alternative 1 or 3.

CEQA Significance Determination and Mitigation Measures

Construction associated with the inundation areas of Sites Reservoir and TRR East and operations associated with the fluctuating WSE on potentially significant archaeological resources within the inundation areas would destroy or otherwise render resources unavailable under Alternative 1 or 3. Construction impacts on archaeological resources outside of the reservoir inundation areas consist of ground disturbance from construction of new facilities for Alternatives 1 and 3.

Construction and operation of Alternative 1 or 3 would result in impacts on potentially significant archaeological resources by materially altering or destroying them. Altering or destroying these resources would reduce or eliminate their potential to yield information useful in archaeological research, and the basis for the significance of these resources, through excavation and disruption of the spatial associations that contain meaningful information. These resources may also be significant under other register criteria; indirect effects such as introduction of new elements or inconsistent changes to the setting may also diminish the significance of these resources. Implementation of Mitigation Measures CUL-2.1, CUL-2.2, CUL-2.3, and CUL-2.4 would reduce impacts on known and previously unknown potentially significant archaeological resources outside the inundation areas. Mitigation Measure CUL-2.1 requires identification of significant archaeological resources. For those archaeological resources identified as significant, Mitigation Measure CUL-2.2 requires avoidance. For those archaeological resources identified as significant under Mitigation Measure CUL-2.1 that cannot be avoided, implementation of Mitigation Measures CUL-2.3 and 2.4 will protect and treat them, respectively. Although Mitigation Measures CUL-2.1 to CUL-2.4 would reduce impacts on archaeological resources identified to be significant, it is not known whether avoidance is feasible in all cases and thus impacts would remain significant and unavoidable.

Mitigation Measures CUL-2.2 through CUL-2.4 would be implemented to reduce impacts on significant archaeological resources in the reservoir inundation areas for Sites Reservoir and TRR East, and any as-of-yet to be identified resources. However, implementation of these mitigation measures would not fully reduce or avoid impacts for significant archaeological resources in the reservoir inundation areas identified under Mitigation Measure CUL-2.1 to a less-than-significant level because they would be altered or destroyed due to inundation and fluctuating WSE. Construction and operation impacts on potentially significant archaeological resources would be significant and unavoidable.

Mitigation Measure CUL-2.1: Identify Significant Archaeological Resources

The Authority will identify significant archaeological resources in the study area. The work will be conducted by a Registered Professional Archaeologist. The following will occur as part of the identification.

- Relocate and map previously recorded potentially significant archaeological resources. Upon access to previously inaccessible areas, all previously recorded

- archaeological resources will be located and their boundaries mapped with sub-meter accuracy Global Positioning System (GPS) units to identify their exact location in relation to Project components that have the potential to affect the resources.
- Locate and map potentially significant archaeological resources in areas that have not been accessible previously. Upon access to previously inaccessible areas, pedestrian surveys will be conducted to identify potentially significant archaeological resources. The surveys will be conducted using transects spaced no greater than 94 feet (30 meters) apart. All newly identified archaeological resources will be recorded on applicable DPR 523-series forms and resource boundaries, features, and diagnostic artifacts outside of features or concentrations will be recorded using sub-meter accuracy GPS units to identify their exact location in relation to Project components that have the potential to impact the resources.
 - Evaluate the NRHP/CRHR eligibility of recorded archaeological resources. Once all previously and newly recorded potentially significant archaeological resources have been documented, each resource will be evaluated for NRHP and CRHR eligibility. As discussed in Appendix 4A, *Regulatory Requirements*, cultural resources are eligible for the NRHP and CRHR if they have integrity and meet one or more of the four criteria as defined in the regulations for the NRHP (Section 4A.18.1.3) and CRHR (Section 4A.18.2.2). Eligibility will be assessed using a combination of (but not limited to) archival, ethnographic, and tribal research, resource condition assessment, subsurface testing, and laboratory analysis. If the resource is evaluated as not eligible, no further action is required and avoidance is preferred.
 - Assess impacts to significant archaeological resources. Significant archaeological resources (archaeological resources evaluated as eligible for the NRHP or CRHR) will be individually analyzed in relation to the Project components within or near those significant resources. Thresholds of significance identified in Section 22.3.1 will be applied.

Mitigation Measure CUL-2.2: Avoid Significant Archaeological Resources

The Authority will avoid significant archaeological resources in the study area by performing the tasks listed below. The work will be conducted by a Registered Professional Archaeologist.

- The Authority will develop feasible Project design specifications to avoid significant archaeological resources. If Project design allows modification, design changes will be implemented to avoid significant archaeological resources or avoid impacts on significant values of the resources (features, artifacts, or any other elements of the resource which make the resource significant).
- The Authority will develop and implement feasible Project construction protocols to avoid significant archaeological resources, including workers' cultural resources sensitivity training. Prior to construction activities in the vicinity of significant archaeological resources, the Authority will require a qualified archaeologist to provide a cultural resources sensitivity training tailboard to all construction personnel working in the vicinity of the resources. The training will identify the sensitivity,

nature, and components of the resource, and inform the construction personnel the protocol needed to take in the case of an unanticipated discovery.

- The Authority will develop and implement feasible Project operations protocols that avoid significant archaeological resources. Similar to the workers' cultural resources sensitivity training for during construction activities, all personnel in charge of managing the operations will be required to have cultural resources sensitive training for the resources near Project facilities and have a familiarity of the resource locations and identifications so that future operations or changes in operations can avoid those resources.

Mitigation Measure CUL-2.3: Protect Significant Archaeological Resources

The Authority will develop feasible Project protection of significant archaeological resources during construction and operations.

- The Authority will develop protections protocols to ensure that qualified staff perform monitoring during Project-related ground disturbance to protect known resources, to identify any unanticipated discoveries, and to implement the Post-Review Discovery Procedure.
- The Authority will develop resource-specific protection plans considering at a minimum Environmentally Sensitive Area delineation and physical fencing, and requiring archaeological monitoring where construction or operation would be in the vicinity of a known significant archaeological resource. The resource-specific protection plans will establish the methods and standards for when and how Environmentally Sensitive Area delineations will be required and when archaeological monitoring activities will be conducted for specific types of sites that will need to be protected. The plans will also identify the roles and responsibilities of monitors and construction crews and specify communication protocols and reporting requirements.

Mitigation Measure CUL-2.4: Significant Archaeological Resources Treatment

The Authority will develop and implement resource-specific treatment plans in consultation with interested parties who are associated with or identify with the resource. The resource-specific archaeological treatment plans will ensure that all significant archaeological resources potentially affected by the Project will be treated according to best practices and professional standards, and that treatment options will include a range of interventions from avoidance and minimization of impacts to mitigation for the loss of the physical resource. Treatment may include, but would not be limited to, data recovery, site capping, analysis of existing artifact collections, or interpretive displays, among other things. Appropriate treatment will be determined based on resource type, resource location, types of impacts to the resource, and results of consultation with tribes, interested parties, and agencies.

NEPA Conclusion

The construction and operation effects under Alternative 1 or 3 would be the same as those described above for CEQA. Construction and operation of Alternative 1 or 3 would result in inundation and WSE fluctuation that would materially alter or destroy potentially significant archaeological resources in inundation areas as compared to the No Project Alternative. Implementation of Mitigation Measures CUL-2.1 through 2.4 would reduce effects to those resources outside of the inundation areas. However, construction and operations of Alternative 1 or 3 would result in a substantial adverse effect on significant archaeological resources due to the inundation and WSE fluctuation of the reservoirs.

Alternative 2

Potentially significant archaeological resources, including 102 identified in previous surveys, are located in the Alternative 2 study area. Compared to Alternatives 1 and 3, Alternative 2 includes the South Road at the end of the Sites Reservoir, extension of the Dunnigan Pipeline from the CBD to the Sacramento River discharge, TRR West, and a smaller Sites Reservoir and thus a smaller reservoir inundation area.

Construction

Construction of the Sites Reservoir and associated components under Alternative 2 would affect 102 potentially significant archaeological sites (49 early Native American, 30 post-Contact, and 23 multicomponent sites). Construction of the South Road and Dunnigan Pipeline would result in impacts on a greater number of potentially significant archaeological resources under Alternative 2 compared to Alternatives 1 and 3. As identified in Table 22-6b, 26 potentially significant resources (14 early Native American, 5 post-Contact, and 7 multicomponent sites) were identified in the Alternative 2 portion of the study area associated with roads, whereas Alternatives 1 and 3 had none. It also is possible that additional archaeological resources that currently are unknown and not visible from the ground surface would be encountered during ground-disturbing activities. Tables 22-10 and 22-11 provide summaries of the sites located in the inundation areas and outside of the inundation areas.

Table 22-10. Summary of Early Native American Archaeological Property Types Within or Outside of the Alternative 2 Inundation Areas

Property Type	Activity Type	Within Inundation Areas	Outside of Inundation Areas
Resource collection and processing	Milling	6	2
	Lithic production	5	7
	Animal butchery	0	0
Habitation	Seasonal occupation site	8	1
	Village site	12	5
	Mound site	0	1
Ceremonial	Isolated human burials	0	0
	Ceremonial	0	1
Multi-use	Multi-use	0	1

Table 22-11. Summary of Post-Contact Archaeological Property Types Within or Outside of the Alternative 2 Inundation Areas

Property Type	Within Inundation Areas	Outside of Inundation Areas
Architectural remains	9	3
Infrastructure remains	2	0
Agriculture and ranching remains	5	2
Refuse	2	4
Reclamation and water conveyance remains	1	0
Post-Contact Native American archaeological properties	0	0
Cemeteries	2	0

Operations

Operations-related activities that could affect potentially significant archaeological resources under Alternative 2 are the same as described above for Alternatives 1 and 3 and consist of fluctuating WSE. A total of 65 potentially significant archaeological resources (slightly fewer than those identified for Alternatives 1 and 3) have been identified within the inundation areas, consisting of 31 early Native American sites, 20 post-Contact sites, and 14 multicomponent sites. These sites would experience the same types of impacts as described above for Alternatives 1 and 3 (i.e., inundation, erosion, breakage).

CEQA Significance Determination and Mitigation Measures

The construction impacts in the inundation zone would be of a similar character as the impacts for Alternatives 1 and 3, but fewer potentially significant archaeological resources would be affected due to the smaller size of the reservoir facilities under Alternative 2. The construction impacts outside the inundation zone also would be of a similar character as the impacts for Alternatives 1 and 3, but a greater number of archaeological resources would be affected due to construction of Project facilities under Alternative 2 that are not part of Alternatives 1 and 3, namely the South Road and the Dunnigan Pipeline facilities. As with Alternatives 1 and 3, Alternative 2 also poses the potential for encountering currently unknown resources during ground-disturbing activities that are not visible from the ground surface.

As with Alternatives 1 and 3, the operations impacts of Alternative 2 would be significant and would therefore require mitigation, as specified in Mitigation Measures CUL-2.1, CUL-2.2, CUL-2.3, and CUL-2.4. Implementation of these mitigation measures would reduce impacts to less than significant to resources outside the new reservoir inundation areas. However, the mitigation measures would not prevent permanent destruction of significant archaeological resources in the reservoir inundation areas and would not reduce impacts to a less-than-significant level and thus the impacts would be significant and unavoidable.

NEPA Conclusion

The construction and operations effects under Alternative 2 would be the same as those described above for CEQA. Construction and operation of Alternative 2 would result in inundation and WSE fluctuation in inundation areas that would materially alter or destroy potentially significant archaeological resources as compared to the No Project Alternative. Implementation of Mitigation Measures CUL-2.1 through 2.4 would reduce effects to significant archaeological resources outside of the reservoir inundation areas. However, construction and operations of Alternative 2 would result in a substantial adverse effect on significant archaeological resources due to the inundation and WSE fluctuation of the reservoirs.

Impact CUL-3: Disturb any human remains, including those interred outside of formal cemeteries*No Project*

Under the No Project Alternative, the Sites Reservoir and associated facilities would not be built. Any human remains present in the study area would not be affected.

Significance Determination

Under the No Project Alternative, no new facilities would be constructed or operated, and there would be no temporary or permanent impacts due to the Project. Therefore, the No Project Alternative would have no impact/no effect on human remains.

Alternatives 1, 2, and 3

The discussions of Alternatives 1, 2, and 3 are combined because they would have similar impact mechanisms and would involve similar construction and operation activities. Further, the differences in impacts between the alternatives would be minor.

Construction

Two existing known cemeteries and a single grave marker are located within the Sites Reservoir inundation area for Alternatives 1, 2, and 3. No marked or dedicated cemeteries are located within the remainder of the study area. Alternative 1, 2, or 3 would inundate these two cemeteries and the grave marker. Implementation of a cemetery relocation procedure as part of pre-construction and construction would occur. Evidence also indicates that there are likely unmarked cemeteries or burial places associated with Native American sites (prehistoric, ethnohistoric, and post-Contact) within the Sites Reservoir inundation area (White et al. 2009). It is possible, however, that currently unknown buried human remains are present outside of the Sites Reservoir inundation area that may be encountered during construction.

Operations

Operations-related activities that could affect human remains for Alternatives 1, 2, and 3 consist of fluctuating WSE within the Sites Reservoir. Fluctuating water levels can cause erosion, which would affect unknown buried human remains that occur within the inundation area. Because the cemeteries would be removed from the study area, operation of Alternative 1, 2, or 3 would have a less-than-significant impact on the two existing known cemeteries. However, because currently

unknown buried human remains may be present in the Sites Reservoir drawdown and fluctuation area, and drawdown and fluctuation cause erosion, Alternatives 1, 2, and 3 have the potential to disturb human remains in the study area during operations.

CEQA Significance Determination and Mitigation Measures

Construction of Alternatives 1, 2, and 3 would disturb human remains interred in known cemeteries within the Sites Reservoir inundation area. Furthermore, construction of Alternatives 1, 2, and 3 could disturb currently unknown human remains interred within the Sites Reservoir inundation area. Implementation of Mitigation Measures CUL-3.1 would reduce this impact; however, the impacts would remain significant and unavoidable. Operations of Alternative 1, 2, or 3 could disturb unknown human remains within the Sites Reservoir inundation area within the fluctuation zone. Implementation of Mitigation Measures CUL-3.1 and CUL-3.2 would reduce this impact; however, the impact would remain significant and unavoidable.

Mitigation Measure CUL-3.1: Cemetery Relocation Plan

The Authority will develop a Cemetery Relocation Plan for relocating two known, dedicated cemeteries located in the inundation area. This will be part of Reclamation's Programmatic Historic Properties Management Plan that would be prepared in consultation with SHPO.

Avoidance of the disturbance and/or inundation of two known cemeteries is not expected to be feasible except under the No Project Alternative. The Cemetery Relocation Plan will ensure that all burials in these two cemeteries are treated with respect and in accordance with the wishes of identifiable descendants. The Cemetery Relocation Plan will also ensure that state and county health and safety codes are followed for those interments that are relocated.

Two dedicated cemeteries in the inundation area will be relocated to a site or sites approved for interment of human remains per requirements of the California Health and Safety Code (Sections 7500–7527). This procedure will be developed through consultation and coordination with descendants and other parties with demonstrated interest in the occupants of the cemeteries. The procedure will outline legal requirements, such as acquiring a written order from the local health department or county superior court before human remains may be moved, and other rules and regulations adopted by the board of health or health officer of the county.

Mitigation Measure CUL-3.2: Avoid, Protect, and Treat Human Burials

The Authority will avoid and protect any human remains encountered during pre-construction, construction, post-construction, operations, and maintenance. The Authority will follow appropriate state guidelines for halting Project activities at the discovery location, contacting the appropriate county coroner to report the discovery, and proceeding with implementation of Project policies regarding Native American consultation or implementation of a burial treatment plan. See Appendix 4A, 4A.18.1 *Federal Policies and Regulations* and 4A.18.2 *State Policies and Regulations*.

The Authority and its qualified contractors will prepare a plan for treating human remains and/or grave goods encountered during archaeological investigations, Project construction, or Project operations. The Burial Treatment Plan will identify ways to avoid or reduce the likelihood of encountering as yet unidentified burials.

The Burial Treatment Plan will ensure that the Authority and its contractors respond to unanticipated discovery of human burials with respect and in accordance with the wishes of identifiable descendants. The Burial Treatment Plan will also ensure that state and county health and safety codes are followed for those interments that are relocated.

This procedure will identify legal requirements and best practices for treating Native American and non-Native historic burials encountered outside of a dedicated cemetery. The Native American portion of the Burial Treatment Plan will be developed in consultation with consulting tribes and may include individual tribes' burial treatment plans.

The Authority and its qualified contractors will complete preparation of the Burial Treatment Plan within 6 months of issuance of the NOD/ROD, adopt the plan prior to selection of the construction contractor, and fully implement the plan prior to any soil disturbance within 500 feet of burials.

NEPA Conclusion

The construction and operations effects under Alternative 1, 2, or 3 would be the same as those described above for CEQA. Construction of Alternatives 1, 2, and 3 would disturb human remains interred in known cemeteries within the Sites Reservoir inundation area as compared to the No Project Alternative. Furthermore, construction of Alternatives 1, 2, and 3 could disturb currently unknown human remains interred within the Sites Reservoir inundation area. Implementation of Mitigation Measures CUL-3.1 would reduce effects; however, construction of Alternative 1, 2, or 3 would result in a substantial adverse effect on human remains. Operations of Alternative 1, 2, or 3 could disturb unknown human remains within the Sites Reservoir inundation area and the WSE fluctuation zone as compared to the No Project Alternative. Implementation of Mitigation Measures CUL-3.1 and CUL-3.2 would reduce effects; however, operations of Alternative 1, 2, or 3 would result in a substantial adverse effect on human remains.

22.5 References

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