

Chapter 17

Cultural Resources

Affected Environment

The term *cultural resource* is a general term for what are defined under federal environmental laws as “historic properties” and under California environmental laws as “historical resources.” These resources can include, but are not limited to, archaeological sites from both prehistoric and historic times, historical places, important or exemplary buildings or engineered structures, modified landscapes, or locations of culturally important community events.

Regulatory Environment

Section 106 of the National Historic Preservation Act

Section 106 of the National Historic Preservation Act (NHPA) of 1966 requires that federal agencies, prior to an undertaking, take into account the effects of their undertaking on historic properties and afford the Advisory Council on Historic Preservation (ACHP) the opportunity to comment on these actions. There are five basic steps to following the Section 106 process:

1. Identify and evaluate historic properties.
2. Assess effects of the project on historic properties.
3. Consultation between the agency and the State Historic Preservation Officer (SHPO), and any other consulting parties, to resolve adverse effects on historic properties, usually resulting in a Memorandum of Agreement (MOA).
4. Submit MOA to ACHP for comments.
5. Proceed accordingly.

The specific regulations regarding compliance with Section 106 state that while the tasks necessary for compliance may be delegated to others, the lead federal agency—in this case Reclamation—has the ultimate responsibility for ensuring that Section 106 is completed according to the statute.

National Environmental Protection Act

NEPA requires that cultural resources be considered in assessing environmental impacts of the proposed federal project. Additionally, NEPA requires federal agencies to integrate NEPA compliance responsibilities with other federal environmental review and consultation requirements, such as Section 106.

The California Environmental Quality Act

CEQA requires that before approving a discretionary project, the lead agency must identify and examine the significant adverse environmental effects that may result from a project. CEQA guidelines define a significant historical resource as “a resource listed or eligible for listing in the California Register of Historical Resources” (Pub. Res. Code Sec. 5024.1).

Freeport Intake Facility to Mokelumne Aqueducts

The Freeport intake facility to Mokelumne Aqueducts project area (see Figures 2-1 and 2-2) is within California’s Central Valley in the vicinity of the Sacramento River and east to Camanche Reservoir. Alternatives 2–5 and portions of Alternative 6 affect this area. The general historical context of the project region is described below, followed by discussions of cultural resources in specific locales within the project region.

The first use of California’s Central Valley by humans occurred more than 12,000 years ago at the end of the Pleistocene era. The Central Valley during the Pleistocene era is thought to have been colder and wetter than today. Parts of the valley, particularly the riparian zones along the rivers, were vegetated with alder, pine, and fir (West 1997). The Central Valley was not as arid as it is today, and lakes—some quite large—were present. The economy of these first people was based on hunting the large animals that roamed the region. Because parts of the Sierra Nevada mountain range were covered with large glaciers, the Central Valley was a major movement corridor for animals and people. People used valley locations to hunt and camp and for other daily activities.

Artifacts of these activities probably exist throughout the Central Valley, but they are rarely found because most are deeply buried in the gravels and silts that have accumulated from erosion and river flooding over the last 5,000 years. A few archaeological sites in the project region are thought to date to the Pleistocene era (Johnson 1967; Peak 1981; Treganza and Heizer 1953). Other valley sites from this period, such as those around Tulare Lake in the San Joaquin Valley, are closer to the surface and are much better known (Wallace and Riddell 1991).

Approximately 12,000 years ago, many large animals that were the major food source of the first Californians became extinct because of warming temperatures,

rising sea levels, and changing precipitation patterns at the end of the Pleistocene. The Central Valley gradually became both warmer and drier. Pine and riparian forests were slowly replaced with vegetation similar to the grasslands and oak forest found in the valley today. To survive, valley inhabitants developed food procurement strategies to make use of a more diverse range of smaller plants and animals.

As population continued to increase, and group territories continued to become smaller and more defined, the population density of the Delta exceeded most other areas of North America (Chartkoff and Chartkoff 1984). Patterns in the activities, social relationships, belief systems, and material culture continued to develop during this period, taking forms similar to those described by the first Europeans entering the area. Today, the groups that developed are called the Valley Nisenan, Plains Miwok, and Northern Valley Yokut.

Spanish explorers first visited the Central Valley in the late 1700s searching for sites suitable for inland missions. In 1772, Pedro Fages passed through the San Francisco Bay and the Delta and reached the mouths of the San Joaquin and Sacramento rivers. In 1793, Francisco Eliza sailed into the as-yet unexplored Sacramento River. Between 1806 and 1817, several other mission site reconnaissance expeditions were conducted. Gabriel Moraga entered the area several times between 1805 and 1817, during which time he is believed to have reached the American, Mokelumne, and Cosumnes rivers. Other notable explorations were carried out by Jose Antonio Sanchez in 1811 and Father Narciso Duran in 1817, who were looking for stolen cattle and horses and for mission runaways. The first European American to travel through the area was Jedediah Strong Smith in the late 1820s, who reported to the Hudson's Bay Company on the quantity and quality of furs in California and established the Sacramento Trail. Joseph Walker and Ewing Young, during separate excursions in the 1830s, followed his general path. (Gudde 1969; Kyle 1990).

The Spaniards' establishment of Franciscan missions along the California coast during the 1700s did not affect the Nisenan living in the project region to the extent that other indigenous groups were affected. American and Hudson's Bay Company trappers who entered the area in the late 1820s also had only a minimal effect on the indigenous population. However, an epidemic believed to be malaria swept through the Sacramento Valley in 1833. This epidemic wiped out entire villages and prompted survivors to evacuate their homes and move into the hills for protection from the disease. Only 25–50% of the Sacramento Valley's population survived the epidemic (Cook 1955).

Domestic sheep and cattle were introduced to central California after the secularization of the missions in the 1830s. By the 1860s, areas that were not under cultivation were occupied by grazing cattle and sheep. At that time, the cattle population had exceeded one million in California, 40% of which was in the Sacramento and San Joaquin Valleys. During summer, cattle herds generally were moved to the high elevations of the Sierra Nevada mountain range, where the weather was cooler and water was more abundant (Burchum 1981).

Although the higher elevations of the Sierra Nevada proved to hold richer gold deposits than the valley, Tertiary gravel channels and riverbars along the lower American, Cosumnes, and Mokelumne Rivers did lead to notable placer strikes in the Gold Rush years. Hydraulic mining techniques for freeing placer gold deposits from buried river banks were practiced throughout the 1860s and 1870s, and finally the bucket-line and doodlebug dredges went to work on the valley floor. The Gold Rush served as the impetus for the development of freight and passenger roads, as well as the development of early towns and cities (Gudde 1969; Kyle 1990). Both freight and people funneled through Sacramento before dispersing to the goldfields of the eastern foothills of the Sierra Nevada.

After the transcontinental railroad was completed in 1869, many people were enticed to California by the railroad companies offering cheap fares and the promise of rich agricultural land and gold. Agricultural ventures in California that provided staples for nearby communities expanded to supply the eastern United States. Delta areas were subject to reclamation efforts that included levees, ditches, and mechanical pumps. Ranching and agriculture continued to be the economic base of the Central Valley and Delta through the first half of the twentieth century.

Methods

Established historical and archaeological research and field methods were used to identify cultural resources from the intake facility to Mokelumne Aqueducts. Background research methods included a search of records at the California Historical Resources Information System (CHRIS), including the National Register of Historic Places (NRHP), California Register of Historical Resources (CRHR), California State Landmarks, and California Points of Historical Interest, archaeological site data, historical maps, and cultural resource studies. A records search also was conducted with the California Native American Heritage Commission, followed by correspondence with Native American representatives identified by the Commission. A number of local historical societies and individuals with knowledge of local resources were consulted in both Sacramento and San Joaquin Counties. Field methods included inspections where facilities were planned, but not formal surveys, throughout the project area in order to check the locations and conditions of known cultural resources, characterize cultural history of the area, and provide a general measure of sensitivity for the presence of currently unknown cultural resources. A summary of identified and potential cultural resources is presented in Table 17-1.

Table 17-1. Identified and Potential Cultural Resources: Freeport Intake Facility to the Mokelumne Aqueducts

| Cultural Resource Sites | General Location of Cultural Site | Intake Facility | Project Components ¹ | | | | | | Canal Pumping Plant | Aqueduct Pumping Plant and Pretreatment Facility (Camanche Site) | Aqueduct Pumping Plant and Pretreatment Facility (optional Brandt site) |
|--|--|-----------------|---------------------------------|---------------|---------------|---------------|---------------|---------------|---------------------|--|---|
| | | | Pipeline Alignments | | | | | | | | |
| | | | Alternative 1 | Alternative 2 | Alternative 3 | Alternative 4 | Alternative 5 | Alternative 6 | | | |
| Walnut Grove Branch of the Southern Pacific Railroad | Intake Facility Site | X | | X | X | X | X | X | | | |
| CA-SAC-44 Klotz Mound | Intake Facility Site | X | | X | X | X | X | X | | | |
| P-34-639 Victory Trees along Freeport Blvd. | Intake Facility Site | X | | X | X | X | X | X | | | |
| Three Prehistoric artifact scatters | Along Segment R | | | | | X | X | X | | | |
| P-34-605 (historic house less than one-quarter of a mile from Gerber Road) | Middle Portion of Pipeline Alignment (Gerber Road) | | | X | X | X | X | X | | | |
| P-34-714 (1920s era house) | Middle Portion of Pipeline Alignment (Gerber Road) | | | X | X | X | X | X | | | |
| JSA-EBMUD-30 | FSCC | | | X | X | X | X | | | | |
| JSA-EBMUD-31 | FSCC | | | X | X | X | X | | | | |
| JSA-EBMUD-32 | FSCC | | | X | X | X | X | | | | |
| JSA-EBMUD-33 | FSCC | | | X | X | X | X | | | | |
| JSA-EBMUD-34 | FSCC | | | X | X | X | X | | | | |
| P-39-000002 | FSCC | | | X | X | X | X | | | | |

| Cultural Resource Sites | General Location of Cultural Site | Intake Facility | Project Components ¹ | | | | | | Canal Pumping Plant | Aqueduct Pumping Plant and Pretreatment Facility (Camanche Site) | Aqueduct Pumping Plant and Pretreatment Facility (optional Brandt site) |
|---------------------------------------|-----------------------------------|-----------------|---------------------------------|---------------|---------------|---------------|---------------|---------------|---------------------|--|---|
| | | | Pipeline Alignments | | | | | | | | |
| | | | Alternative 1 | Alternative 2 | Alternative 3 | Alternative 4 | Alternative 5 | Alternative 6 | | | |
| P-39-000056 | FSCC | | | X | X | X | X | | | | |
| P-39-000058 | FSCC | | | X | X | X | X | | | | |
| P-39-000059 | FSCC | | | X | X | X | X | | | | |
| P-39-000284 | FSCC | | | X | X | X | X | | | | |
| JSA-EBMUD-9 | FSCC | | | X | X | X | X | | | | |
| JSA-EBMUD-26 | FSCC | | | X | X | X | X | | | | |
| JSA-EBMUD-27 | FSCC | | | X | X | X | X | | | | |
| JSA-EBMUD-28 | FSCC | | | X | X | X | X | | | | |
| JSA-EBMUD-29 | FSCC | | | X | X | X | X | | | | |
| P-39-000519 | FSCC | | | X | X | X | X | | | | |
| JSA-EBMUD-19 | FSCC | | | X | X | X | X | | | | |
| Br. No. 29C0230 | FSCC | | | X | X | X | X | | | | |
| Br. No. 29C0246 | FSCC | | | X | X | X | X | | | | |
| Br. No. 29C0249 | FSCC | | | X | X | X | X | | | | |
| Br. No. 29C0253 | FSCC | | | X | X | X | X | | | | |
| Br. No. 29C0254 | FSCC | | | X | X | X | X | | | | |
| Ranch complex at 25994 N. Elliot Road | FSCC | | | X | X | X | X | | | | |
| Ranch complex at 16121 Liberty Road | FSCC | | | X | X | X | X | | | | |

¹ survey coverage (percentage of site surveyed) varies for each of the project components

Identified Cultural Resources from Intake Facility to Mokelumne Aqueducts

Freeport Intake Facility

The intake facility site was visited and a pedestrian survey was conducted to identify potentially significant cultural resources. The intake facility (E630318 N4259189) is located in the vicinity of a prehistoric archaeological site (P-34-71/CA-SAC-44), known as the Klotz Mound. This mound site was last recorded in 1934 as a village site 50 yards in diameter and containing human burials. The mound is reported as having been leveled, presumably for agricultural use. Even though this location has undergone heavy modification during the twentieth century, remnants of archaeological sites of this type typically remain below the water surface or under river levees. No exploratory studies have been undertaken to identify or define cultural deposits in the vicinity of this location.

The Walnut Grove Branch of the Southern Pacific Railroad is an abandoned railroad line that runs 33 miles from Sacramento to Isleton along the Sacramento River and Freeport Boulevard. The railroad corridor was previously determined to be eligible to the NRHP under Criterion A at the local level of significance (Maniery 1991a). The period of significance is 1909–1934. The railroad follows Freeport Boulevard near the eastern boundary of the intake facility.

Zone 40 Surface Water Treatment Plant

A brief field inspection was conducted along Bradshaw Road, between Gerber and Florin Roads; along Florin Road from Bradshaw Road to Excelsior Road; and along Gerber Road from Excelsior Road to Bradshaw Road in the area of the potential Zone 40 Surface WTP location. In addition to the brief field inspection, a record search was conducted along the above mentioned corridors. The setting was primarily open space with intermittent residential, single-family houses. Four previous cultural resource surveys were conducted in this area with approximately 20% survey coverage. A review of the 1856 and 1866 U.S. General Land Office (GLO) maps revealed within this area four roads, five fences, one schoolhouse, and two houses just west of Bradshaw Road, and one house just south of Elder Creek Road (U.S. General Land Office 1856, 1866).

Terminal Facilities and Optional Terminal Facility Settling Basins

Terminal facilities are within the corridors of segments K and N discussed below. No previous cultural surveys have occurred and no cultural resources have been recorded at the facilities sites.

No previous cultural surveys have been completed and no cultural resources have been recorded at the sites of optional terminal facility settling basins.

Canal Pumping Plant

No known recorded cultural resources exist in the immediate vicinity of the proposed pumping station. The closest recorded cultural resources are JSA_EBMUD-31 and JSA_EBMUD-32. Both of these sites are segments of historic road alignments. Presence of a creek to the immediate north of the facility indicates a potential for buried prehistoric sites in the vicinity.

Aqueduct Pumping Plant and Pretreatment Facility

The aqueduct pumping plant and pretreatment facility (Camanche site and optional Brandt site) are located along the proposed Segment X. Approximately 70% of this area has been previously surveyed. No known cultural resources have been recorded in the location or vicinity of the proposed plant. The optional Brandt site is located where the pipeline adjoins the Mokelumne aqueducts and is in an area that has been partially surveyed. There are no previously recorded cultural resources in the immediate vicinity of the optional Brandt site. The closest recorded sites are P-39-000058, P-39-000056, and P-39-000059. These sites are approximately 0.75 mile northwest of the intersection of the FSCC pipeline and the Mokelumne aqueducts. The project area is between two unnamed drainages. There is the potential to encounter buried prehistoric sites in this area.

Freeport Intake Facility to Zone 40 Surface Water Treatment Plant/Folsom South Canal Pipeline

Segment A

Segment A runs from the intake facility and connects with segments B and P. This area has been covered by previous surveys (Peak 1979a; Bouey and Herbert 1990). The current environment is characterized by residential development, an abandoned water treatment plant, a large water tank, a drainage canal and railroad tracks. Potentially affected cultural resources include the Klotz Mound (CA-SAC-44), Walnut Grove Branch Line Railroad, and the Victory Trees (P-34-639).. The Victory Trees have been recommended as eligible for listing on the National Register of Historic Places. The Victory Trees run on both sides of Freeport Boulevard from the intake facility location to just south of Pocket Road. The trees are elm trees grown from seeds requested by the Sacramento Post No. 1051 of the Veterans of Foreign Wars and sent by the French Agriculture Department in 1925. The seeds were specimens of tree types from World War I battlefields where United States soldiers lost their lives.

Segment B

Segment B follows the edge of the Sacramento River along Freeport Boulevard from the water tank waste disposal site intake area north to the intersection of Meadowview Road. This segment adjoins segments A, C, and P. Four surveys have been conducted in the vicinity of this segment (Bass 1985; Hupp 2001a, 2001b; Peak 1980a) covering approximately 30% of the segment.

One cultural resource, the Victory Trees (P-34-639), has been recorded along the segment.

Other potential resources along this segment include the Sacramento River levee, and the Walnut Grove Branch of the Southern Pacific Railroad. One road labeled as "Road to Sacramento" appears on the 1859 GLO map (U.S. General Land Office 1859).

Segment C

Segment C follows Meadowview Road and adjoins segments B and D. One survey (Rondeau 1979) has been conducted in the vicinity of the segment and covers approximately 20% of the segment. No cultural resources have been recorded along this segment. The 1859 GLO map shows the presence of a schoolhouse just off the current road, near the intersection of Freeport Boulevard and Meadowview Road (U.S. General Land Office 1859).

Segment D

Segment D follows Mack Road and adjoins segments C and E. No previous surveys have been conducted in this area. No cultural resources have been recorded for this segment and no cultural features appear on the 1859 GLO map (U.S. General Land Office 1859).

Segment E

Segment E follows Mack Road and is located in a mixed residential and commercial area. This segment adjoins segments D, F, Option 2, and U. No cultural resources were identified for this segment. The entire segment has been previously surveyed (Peak 1980b) for cultural resources. The 1855 GLO map shows the Stockton & Telegraph Road and the Upper Stockton Road bisecting the segment (U.S. General Land Office 1855a).

Segment F

Segment F follows Elsie Avenue and Wilbur Way and adjoins segments Option 2, E, G, and U. No cultural resource surveys have been conducted along this segment. No archaeological sites have been recorded along this segment.

Segment G

Segment G follows Gerber Road and adjoins segments Option 2, F, and H. No cultural resources surveys have been conducted nor have any sites been recorded for this segment.

Segment H

Segment H follows Gerber Road and adjoins segments G and I. No cultural resource surveys have been conducted and no cultural resources are recorded along this segment. The 1855 GLO map shows two historic roads bisecting this segment (U.S. General Land Office 1855a). The Southern Pacific Railroad also bisects this segment.

Segment I

Segment I follows Gerber Road and adjoins segment H, J, and L. Three cultural resource surveys bisect this segment (Havelaar 2001; Johnson 1974; Peak 1979b). Approximately 25% of the segment has been surveyed. P-34-714, a 1920s-era single family dwelling, was recorded along this segment. P-34-605 is a historic house less than 1 mile from Gerber Road. The 1856 GLO map shows two roads bisecting, and one agricultural field adjacent to, this segment (U.S. General Land Office 1856). Two bridges were noted during field inspection; one is associated with the Central California Traction Railroad. The second is one quarter-mile east of the intersection of the Central California Traction Railroad along Gerber Road.

Segment J

Segment J follows Bradshaw Road and adjoins segments I, K, and L. Approximately 10% of this segment has been previously surveyed (Johnson 1974). No cultural sites have been recorded along this segment.

Segment K

Segment K follows Florin Road and adjoins segment J. Approximately 5% of this segment has been previously surveyed (Johnson 1974; Slaymaker 1988). No cultural resources have been recorded along this segment.

Segment L

Segment L follows Gerber Road and adjoins segments I, J, and M. Approximately 20% of the segment has been surveyed (Johnson 1974). No cultural resources have been recorded within this segment.

Segment M

Segment M follows Gerber Road and adjoins segments L and N. One cultural resources survey has been conducted in this segment (Johnson 1974) which covers approximately 60% of the segment. No cultural resources have been recorded along this segment. The 1856 GLO map shows one road bisecting this segment (U.S. General Land Office 1856).

Segment N

Segment N follows Gerber Road and adjoins segments M and O. One survey (Johnson 1974) covered approximately 25% of this segment. No cultural resources have been recorded for this segment. The 1856 GLO map shows one road bisecting the segment (U.S. General Land Office 1856).

Segment O

Segment O follows Grant Line Road and adjoins segment N. No cultural resource surveys have been conducted nor have any cultural resources been recorded along this segment. The 1871 GLO map indicates that this segment abuts the historic Rancho Omochumnes (U.S. General Land Office 1871).

Segment P

Segment P follows I-5 and adjoins segments A, B, and Q. Approximately 70% of the segment has been previously surveyed (Russo 1978; Chavez 1982). One cultural resource, Victory Trees (P-34-639) along Freeport Boulevard, has been recorded along this segment.

Segment Q

Segment Q follows I-5 and adjoins segments P, R, and Option 1. This entire segment has been previously surveyed (Russo 1978; Chavez 1982). No cultural resources were recorded.

Segment R

Segment R does not correspond to an existing roadbed. This segment adjoins segments Q, Option 1, and S. Four cultural resource surveys (Chavez 1982; Peak 1979a; Russo 1978; and Sikes and Tremaine 2002) have been conducted in the vicinity of this segment, and approximately 100% of this alignment has been surveyed for cultural resources. The 1855 and 1859 GLO maps indicate swampland in the vicinity of this segment (U.S. General Land Office 1855a, 1859). Three prehistoric archaeological sites (baked clay scatters) were discovered during a 2002 pedestrian survey conducted by Tremaine & Associates for the Interstate 5/Cosumnes River Boulevard Interchange Project, which includes segment R. In addition, Tremaine & Associates (Sikes and Tremaine 2002) identified six archaeologically sensitive areas in segment R through an electromagnetic survey. Jones & Stokes conducted archaeological excavations to determine whether buried archaeological sites are present in the areas identified as sensitive. No archaeological sites were identified as a result of the excavations. A draft report will be submitted to Caltrans in June 2003.

Segment S

Segment S does not follow a road and adjoins segments R, Option 1 and T. The entire segment has been previously surveyed (Derr 1997; Johnson 1974; Peak 1979a, 1980a). No cultural resources have been recorded along this section. Cultural features noted on the 1855 historic GLO maps include the Stockton & Telegraph Road and a field in the vicinity of Franklin Boulevard (U.S. General Land Office 1855a).

Segment T

Segment T follows Cosumnes River Boulevard and adjoins segments S and U. Three previous cultural resource surveys (Derr 1997; Johnson 1974; Walden 1997) have been conducted. No cultural resources were recorded along the surveyed portion of this segment.

Segment U

Segment U partially follows Power Inn Road and adjoins segments F, Option 2, and T. Approximately 5% of this segment has been previously surveyed

(Derr 1994; Johnson 1974). No cultural resources have been recorded along this segment. The 1855 GLO map shows the Upper Stockton & Sacramento Road bisecting this segment (U.S. General Land Office 1855a).

Segment Option 1

Segment Option 1 follows I-5 and partially follows Beacon Creek. Segment Option 1 adjoins Q, R, and S. According to the records search results, this entire segment has been covered by previous surveys (Chavez 1982, 1983; Russo 1978). No cultural resources have been recorded along this segment. No cultural features were noted on the historic maps in the vicinity of this segment.

Segment Option 2

Segment Option 2 follows Power Inn Road and Gerber Road and adjoins segments E, F, G, and U. No cultural resource surveys have been conducted along the Power Inn Road portion of this segment. Approximately 10% of the Gerber Road portion of this segment has been surveyed (Johnson 1974) for cultural resources. No archaeological sites have been recorded for Segment Option 2.

Folsom South Canal to Mokelumne Aqueducts Pipeline

Segment V

This segment passes through land used for ranching during the 1800s and most of the 1900s. Massive feedlots located west of Clay Station Road and extensive vineyards located south of Angrave Road indicate that this area continues to be an active agricultural area. The segment is characterized by a mix of low-density middle- and late-twentieth century single family houses. Skunk Creek crosses this segment indicating a moderate potential for both prehistoric and historic period resources.

Approximately 70% of this segment has been surveyed (Jones & Stokes Associates, Inc. 1997) for cultural resources. Three cultural resources (JSA-EBMUD-30, JSA-EBMUD-31, and JSA-EBMUD-32) have been previously recorded for this segment. JSA-EBMUD-30 is described as a segment of a historic road. JSA-EBMUD-31 is a 100-foot segment of Clay Station Road located near the intersection of Clay Station Road and Borden Road. JSA-EBMUD-32 is a 100-foot segment of Borden Road near the intersection of Clay Station Road and Borden Road. These three resources have not been evaluated for their eligibility for listing on the National Register of Historic Places.

Segment W

This segment crosses several drainages, among them Dry Creek, Coyote Creek, and a number of unnamed streams. The proximity of this segment to these creeks increases the probability that prehistoric period archaeological sites may occur. Generally, this alignment features a mix of residential and agricultural uses.

Approximately 65% of this segment has been surveyed (Jones & Stokes Associates, Inc. 1997; Maniery 1991b; Napton 1993) for cultural resources. One cultural resource has been previously recorded for this alignment. This resource (JSA-EBMUD-19) is described as a 100-foot segment of Liberty Road. This segment includes the following five bridges: 29C0230 (Coyote Creek), 29C0249 (Dry Creek), 29C0253 (Dry Creek Overflow), 29C0254 (Coyote Creek), and 29C0246 (South Fork Coyote Creek). All of these bridges are ineligible for the National Register of Historic Places.

In addition to the above, two historic ranch complexes are located adjacent to this alignment. The first of these is located at 25994 North Elliot Road and consists of a house, a barn, a cattle chute, and various outbuildings. A second ranch complex is located at 16121 Liberty Road and consists of a house, a barn, and a cattle chute. Both ranch complexes appear to date to the first half of the twentieth century. Neither complex has been recorded or evaluated for inclusion on the National Register of Historic Places.

Segment X

This segment crosses the Mokelumne River and several unnamed drainages, suggesting the potential for prehistoric resources associated with fresh water sources. The alignment passes through a mix of agricultural and residential areas.

Approximately 70% of this segment has been surveyed (Derr 1981; Jones & Stokes Associates, Inc. 1997; Napton 1993) for cultural resources. Ten cultural resources have been previously recorded for this segment or are known to occur within one half-mile of this segment. These cultural resources include JSA-EBMUD-9, JSA-EBMUD-26, JSA-EBMUD-27, JSA-EBMUD-28, and JSA-EBMUD-29. JSA-EBMUD-9 is described as two segments of SR 12. JSA-EBMUD-26 is a late nineteenth century ranch archaeological site. JSA-EBMUD-27 is an early twentieth century mining site consisting of mining features, a refuse scatter, and a concrete water tank. JSA-EBMUD-28 is an early twentieth century ranch site containing a number of structure and feature remains. JSA-EBMUD-29 is described as a segment of an historic road. None of these resources have been evaluated for inclusion on the National Register of Historic Places.

In addition to these resources, the Kentucky Branch of the Southern Pacific Railroad (P-39-000002) crosses this alignment. This resource has been

determined to be ineligible for listing on the National Register of Historic Places. Four previously recorded cultural resources (P-39-000056, P-39-000058, P-39-000059, and P-39-000284) occur within a one half-mile radius of this alignment. Government Land Office plat maps of this area from the 1850s through the 1870s show three historic roads in close proximity to this alignment. In addition to these resources, two bridges on Cord Road may be historic features.

Segment Option 3

The segment passes through a mix of agricultural lands and low-density middle- and late-twentieth century single family houses. The stream crossings at Dry Creek and Goose Creek suggest the potential for prehistoric period resources associated with stream crossings.

Approximately 70% of this segment has been surveyed (Jones & Stokes Associates, Inc. 1997) for cultural resources. Two cultural resources (JSA-EBMUD-33 and JSA-EBMUD-34) have been previously recorded for this segment. JSA-EBMUD-33 is described as a 200-foot segment of Mackville Road. JSA-EBMUD-34 is described as a 100-foot segment of an unnamed historic road. These two resources have not been evaluated for their eligibility for listing on the National Register of Historic Places. The 1855 GLO map shows four historic roads and at least one historic fence in close proximity to this alignment (U.S. General Land Office 1855b).

Enlarge Pardee Reservoir

Pardee Reservoir is located along the Mokelumne River in the foothill region of the Sierra Nevada Mountains (see Figure 2-3). A brief overview of the historical context of the project area, including a description of the prehistoric, ethnographic, and historical settings, follows.

Much of what is known of the project area's prehistoric archaeology comes from studies associated with a series of water resources projects along the western foothills of the Sierra Nevada mountain range during the 1960s and 1970s. These projects are:

- Auburn Dam–American River
- Dry Creek–North of the Mokelumne River
- Camanche Reservoir–Mokelumne River
- New Melones–Stanislaus River
- New Hogan Reservoir–Calaveras River
- Pacific Gas & Electric–along the Mokelumne River

Prehistory in the Central Valley has been classified into distinct time intervals based on increased socioeconomic complexity and technological advancements. The earliest aboriginal people represent the Fluted Point and Western Pluvial Lakes Traditions, dating from approximately 11,500 to 7,500 years ago. The small, egalitarian, migrating groups had limited technology; their subsistence pursuits included hunting and exploiting resources along lakes and rivers. This was followed by an increase in Native American populations coinciding with the use of the mano and metate for seed grinding and wide-stemmed projectile points after 7,500 years ago (Moratto 1984).

The Early Horizon (6,500 to 4,500 years Before Present [B.P.]) is marked by a reduction in the size of projectile points, largely attributed to the use of the bow-and-arrow. Plant processing became intensified, and mortars and pestles were introduced. During this time, artifacts associated with ornamental and ritual use include *Olivella* beads (spiral loped and rectangular), *Haliotis* pendants, quartz crystals, and baked clay and alabaster charmstones. Mortuary practices included fully extended burials (ventral side) with western orientation and no cremation (Heizer 1949; Beardsley 1948).

The Middle Horizon (3,500 to 1,500 years B.P.) is characterized by increased exploitation of resources, including hunting, fishing, and plant gathering. Artifacts include large, unstemmed obsidian projectile points; bone artifacts; pigment mortar and pestles; *Olivella* spiral-loped and rectangle beads; and *Haliotis* pendants. Charmstones of the D5 form appear, and killing of mortuary objects is common. Tightly flexed burials were positioned on the side or back.

Artifacts associated with the Late Horizon (1,500 years B.P. to historic times) include small projectile points, *Haliotis* banjo-shaped ornaments, *Olivella* bead forms 3e and 3a, clam shell beads, baked clay objects, bird bone tubes, and wooden fish hooks. Mortuary practices are characterized by flexed burials and cremations (Lillard et al. 1939).

Pardee Reservoir is located within an area known to be inhabited by the Northern Sierra Miwok during ethnographic times. The Northern Sierra Miwok are considered to be closely related to four other groups collectively referred to as the Eastern Miwok, each having a distinct language and culture. Three tribes make up the Sierra Miwok language group: Northern, Central, and Southern Sierra Miwok. The Northern Sierra Miwok territory extends across the foothills and mountains of the Mokelumne River and Calaveras River drainages (Levy 1978).

It is believed that the Northern Sierra Miwok came into the Sierra Nevada mountain range and its foothills from the central California Delta region. Linguistic evidence points to a relatively late arrival (about 800 years ago) of the Northern Sierra Miwok. This corresponds to the Late Period of the Central California taxonomic sequence (Levy 1978).

Similar to ethnographically described populations throughout California, the Northern Sierra Miwok shared a common language with the Utian (Miwok-

Costanoan) language family, but were not united politically or otherwise. Instead, populations were organized within a series of autonomous tribelets that were composed of a principal village surrounded by a localized patrilineage (Levy 1978). Miwok settlement was tied into their subsistence strategies. They occupied permanent villages located at lower elevations than the foothills during the spring and summer. The Sierra Miwok would also descend into plains of the Central Valley to hunt large animals (such as antelope and tule elk) not present in the mountains. Wild plant food formed the bulk of their diet through most of the year. Acorns were the main staple, and were gathered and stored along with nuts and other seeds for consumption during the winter and spring. Levy (1978) lists the interior live oak and the blue oak as most significant for acorn resources in foothill communities, while black oak was important at higher elevations. The Miwok would annually burn their land in late summer to stimulate growth for food plants for the coming year. Hunting and fishing likewise had a seasonal rhythm based on animal migration and birthing patterns. Meat consumption was the highest in the winter months when plant resources were generally limited to stored food.

Calaveras County was one of California's original 27 counties, named by the Spanish explorer Gabriel Moraga during his 1808 expedition (Hoover et al. 1966). Throughout the following decades, the foothills in the region of the Calaveras and Mokelumne Rivers were utilized periodically by hunters and trappers from the Hudson's Bay Company, who established seasonal camps and trails along many rivers and streams that flowed from the Sierra Nevada mountain range. The name "Mokelumne" apparently was derived from the name of a Plains Miwok village located in what is now San Joaquin County. The name was applied first to the river itself during the United States Exploring Expedition of 1841, led by Charles Wilkes (Browning 1986; Gudde 1969).

The Pardee Reservoir is directly west of the Mother Lode Region of the Sierra Nevada and within the historic mining area identified geographically as the Campo Seco–Valley Springs district (Clark 1970). Miners first arrived in this area in 1849, and the banks of the Mokelumne River were quickly populated by dozens of mining camps. Gold was found in a variety of mineral deposits throughout the district, including recent stream gravels, Eocene terrace gravels, narrow quartz veins, and massive copper and zinc sulfide deposits in the Campo Seco area, where gold was later produced as a by-product of copper mining (Clark 1970).

During the late nineteenth century and the beginning of the twentieth century, the project location was the site of pioneering attempts to generate hydroelectric power and transport it over long distances (Chavez et al. 1984). Early attempts at hydroelectric power and transmission were promoted by Price Andre Poniatowski, a Polish-born nobleman with high connections and access to capital. (Poniatowski was married to Elizabeth Sperry who was the sister-in-law of a San Francisco banker, William Crocker.) Poniatowski and Crocker formed the California Exploration Company (Dean 1960). Old water systems originally used to generate power were used (Seele n.d.). The Blue Lakes power plant was built on the Mokelumne in 1897, and the Standard Electric Company was

formed. Transmission lines supplied electricity to Mokelumne Hill, Angel Camp, local mines, and later Stockton (Chavez et al. 1984). The success of transmission of electricity over long distances spurred the construction of the larger Electra Powerhouse, which, in 1902, was the first hydroelectric powerhouse to supply electricity to San Francisco. Standard Electric Company later merged with other companies to form PG&E (Chavez et al. 1984).

Water conveyance systems in the project area began with the need for supplying water to mining efforts. Hundreds of miles of canals were built in the Sierra Nevada foothills during the height of hydraulic mining (JRP & California Department of Transportation 2000).

As the gold rush declined, existing water conveyance systems related to mining were opportunistically employed not only for hydroelectric power but for local agriculture (JRP & California Department of Transportation 2000).

EBMUD was formed in 1923 through the cooperative effort of nine communities: Oakland, Berkeley, Alameda, Piedmont, Emeryville, Albany, San Leandro, Richmond, and El Cerrito (Noble 1970). The first project to be undertaken by the new utility district was a monumental, as well as urgent, task: that of providing its customers with a continual supply of dependable, pure, fresh water that would have to be transported from the Sierra Nevada mountain range across the great Central Valley via aqueduct.

The site chosen for the reservoir was above the old mining town of Lancha Plana on the Mokelumne River, where the river flowed through a wide and deep natural ravine before plunging into a steep rock gorge ideally suited for damming and the generation of hydropower. Although 94 miles from Oakland, water from the reservoir could flow through the pipeline entirely by force of gravity all the way to the East Bay plain (Noble 1970). The increase in property values and taxation potential at the reservoir site was such that development was welcomed by the majority of residents and local government authorities. A \$39 million district bond issue was awarded to begin financing the project, and after a number of skirmishes over the acquisition of land and water rights in the reservoir area, construction of the dam site began in July of 1927.

Construction camps just south of the dam site were readied to house the 1,500 men that would be employed during the peak of the construction activities. Nearby Campo Seco was transformed into a roaring camp reminiscent of the mining days, with places of prostitution and gambling set up in the remaining old adobes. The Jackson Creek and South spillways of the reservoir were completed early in 1928 and the water began to collect in the reservoir in March of that year. In June of 1929, the dam, powerhouse, and aqueduct were ready for operation and the first water from the Mokelumne River soon reached the East Bay to be stored for use in the nearly empty San Pablo Reservoir. The Pardee Reservoir was officially dedicated on October 19, 1929 (Noble 1970).

After the Gold Rush subsided, economic pursuits in the region diversified when some miners turned to agriculture-gardening and fruit growing (Chavez

et al. 1984). In general the landscape of the region did not lend itself to large-scale agriculture. Some small scale agricultural production did occur through limited orchard and vineyard development and produce for local markets (JRP & California Department of Transportation 2000). Although farming was never on a large scale, there was considerable farming activity around the Middle Bar, Hunt Gulch, and Poorman Gulch areas.

Methods

Several methods were used to identify cultural resources within the Enlarge Pardee Reservoir project area that includes the expanded Pardee Reservoir, four saddle dams, one recreation facility, and the new replacement dam. The methods to identify cultural resources included a search of records at CHRIS, including the National Register of Historic Places, California Register of Historical Resources, California State Landmarks, California Points of Historical Interest, archaeological site data, historical maps, and cultural resource studies. A record search also was conducted with the California Native American Heritage Commission, followed by correspondence with Native American representatives identified by the Commission. Local historical societies were contacted. Information was gathered from files at the EBMUD's offices in Oakland, California. Previous cultural resource surveys cover more than 50% of the project area. This level of coverage is adequate to assess the types of cultural resources likely to be encountered in the unsurveyed portions of the project area. Available data on known cultural resources is summarized in the following section and in Table 17-2.

Identified Cultural Resources at Pardee Reservoir

The enlargement of Pardee Reservoir would affect two cultural resources that are listed on the NRHP: Pardee Dam and the Middle Bar Bridge. Two other cultural resources that are listed on the CRHR would be affected: Middle Bar and Big Bar mining sites. Other known cultural resources potentially affected by reservoir operation- or construction-related activities for enlargement of Pardee Reservoir are summarized in Table 17-2. There is a potential that inundation may flood existing mine shafts. A number of known sites have records that have not been assigned California trinomials, and CHRIS does not have those records. The sites summarized in Table 17-2 are at or below approximately 614 ft. It was noted in some cases that the elevation on the site record did not match the map location elevation.

Pardee Dam, Spillway, and Saddle Dams

The Pardee Dam, constructed from 1927 to 1930, was found to be significant at the State level under the NRHP criteria A and C. Criterion A (*associated with events that have made a significant contribution to the broad patterns of our*

history) applies for its role in the public works history of California. Criterion C (*embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction*) applies as an important example of the curved gravity concrete dam and as an example of a master designer Arthur Powell Davis.

Under the NRHP, Pardee Dam is considered a discontinuous historic district with five contributing elements and no noncontributing elements. The five major interconnected elements include the dam, south spillway, Jackson Creek spillway, powerhouse, and intake facility tower.

The dam is 575 feet high at the crest and has a base that is 225 feet thick. Common to engineering structures completed in the 1920s and 1930s the dam is treated with architectural details to soften its massive appearance. Architectural details included a series of small towers along the crest of the dam each with a decorative light standard.

William Mulholland, General George Goethals, and the former director of the United States Reclamation Service, Arthur Powell Davis, were brought on board and formed a highly notable team for the project. Davis was to serve as the chief engineer and general manager for the project with Mulholland and Goethals serving as consultants. Although the building of Pardee Reservoir is considered an accomplishment of a highly qualified group of engineers, it is Davis who is attributed with the primary design authorship. Davis is considered a pivotal figure in twentieth century dam design (Mikesell 1994).

At the time of construction, Pardee was noted as being the tallest dam in California and the third tallest in the United States, and creating the third largest reservoir in the United States (Mikesell 1994). The sheer mass of Pardee makes it an exemplary model of a curved/arched gravity dam.

Other identified cultural resources in the vicinity include Sites DS-1 through DS-6. Site DS-1 is a mining-related site. Features at the site include a mine shaft, seven prospect pits, one foundation, one tent or cabin pad, waste rock piles, and a dirt road.

Site DS-2 is a historic-period site that includes a cement cylinder retaining wall, a structure pad, a dry-stacked fieldstone retaining wall, a level soil area with chicken wire, and a trash dump.

Site DS-3 is a historic dump. The dump is continuous and bisected by a dirt road that appears to have been present since the dump was in use. A ditch runs through the site (Site DS-6). There is a sparse scatter of garbage (metal wood, 1930s car) on the ridge, upslope of the drainage. It appears that the refuse was dumped from the ridge into the drainage area. The dump is likely associated with the construction of Pardee Dam (Ballard et. al. 1997).

Table 17-2. Identified and Potential Cultural Resources: Enlarge Pardee Reservoir

| Site Type/Theme | Site No. | Reference | Site Features | Elev. (ft) | Area (m ²) | Quad Location | NRHP/CRHR Eligibility | Comments |
|------------------------------------|-------------|--|--|------------|------------------------|----------------------------|---|--|
| Historic–Water Systems/Engineering | Pardee Dam | JRP 1996, Mikesell 1994, Herbert and Mikesell 1995 | Pardee Dam, South Spillway, Jackson Creek Spillway, powerhouse, intake facility tower | 225 | N/A | Jackson and Valley Springs | Yes, listed on NRHP, 710/95 Criterion A and C | HAER completed (Herbert and Mikesell 1995) |
| Historic–Mining Settlement | P-S-12 | PAR 1992 | French Bar; stone walls, foundations, rock walls and retaining walls for ditches and trails, tent or other mining related features | 560–720 | 104,138 | Jackson | Undetermined; recommended for eligibility by Parr, 1992. | Recommended archival research and possibly excavation. |
| Historic–Mining Settlement | D-3 | Pacific Legacy 1997 | Earthen ditch known as Kreth Ditch | 580 | Unknown | Jackson Creek | Undetermined; Pacific Legacy, 1997, suggests not eligible | None |
| Historic Settlement | PD-2 | Pacific Legacy 1997 | Nine formed concrete pier footings | 580 | Unknown | Jackson Creek | Undetermined: Suggested not eligible | None |
| Historic–Homestead | PD-1 | Pacific Legacy 1997 | Wooden barn, introduced ornamental plants and fruit trees, stacked rock alignments, small rock walls, historic debris | 580–600 | 11,304 | Jackson Creek | Undetermined; Pacific Legacy 1997 suggests not eligible | None |
| Historic–Placer Mining | P-S-11 | PAR 1992 | Linear rock wall, possible mining and diversion channel | 600 | 11,190 | Jackson | Undetermined; recommend further work (Parr 1992) | Potential for buried deposits, maybe old 1870s road |
| Historic–Mining Settlement | CA-CAL-956H | Chavez et al.1984 | Big Bar; depression-era houses and older houses, historical bridge abutments, cables, concrete footings, toll house, roadbeds, adits, pits, pocket mines, terraces, ditch with penstock, concrete piers, tailing piles | 600–700 | 117,750 | Mokelumne Hill | Undetermined; Chavez, et al. 1984, suggest not eligible | California Historical Landmark No. 41 |

Table 17-2. Continued

| Site Type/Theme | Site No. | Reference | Site Features | Elev. (ft) | Area (m ²) | Quad Location | NRHP/CRHR Eligibility | Comments |
|----------------------------------|-------------------|--------------------|---|----------------------------|------------------------|----------------|--|--|
| Historic–Mining Settlement | CA-AMA-280H | Chavez et al. 1984 | Adits, shafts areas of ground sluicing and placer mining, ditches, possible smelters, habitation terraces, dry-laid stone walls and stone lined ditch, penstock, possible stamp mill foundation, roadbeds, tailings, historic artifacts | 600–800 | 98,125 | Mokelumne Hill | Undetermined; Chavez et al. 1984 suggest not eligible | L.K. Hall and Confidence Quartz Mine |
| Historic–Structure, Truss Bridge | Middle Bar Bridge | OHP #055824 | Bridge built by Clinton Bridge and Iron Works | 600 | N/A | Mokelumne Hill | Yes, Listed on NRHP 12/24/85 | Bridge #306 16 |
| Historic–Mining | P-S-1 | PAR 1992 | Two mine shafts, tailing pile, roadbed | 605–710 | 30,656 | Jackson | Undetermined; Parr 1992 suggest it is not | I.Q. Horton and J.P. Hase homestead and mine |
| Historic–Quartz Mine | CA-AMA-298H | Chavez et al. 1984 | Adit, shaft, possible tent or house terrace, rock-lined ditch, waterwheel footing, concrete bridge footing, roadbed, tailings, historic artifacts | 640–800 (mapped below 613) | 54,940 | Mokelumne Hill | Undetermined; Chavez, et al. 1984 suggest not eligible | Kearsing Mine |
| Historic–Placer Mine | CA-CAL-953H | Chavez et al. 1984 | Two dry-laid stone foundations and terraces for structures, three concrete footings, and a platform for a pump, roadbed, ditch with flume pipe, power lines, rails, tailings | 680 (mapped below 625) | 35,325 | Mokelumne Hill | Undetermined; Chavez et al. 1984 suggest not eligible | Placer mine |
| Historic–Industrial Site | CA-AMA-228H | Chavez et al. 1984 | Blue Lakes Powerhouse, foundations, elements of the penstock, dry-laid stone retaining walls, dry-laid stone ditch | 680 | 8,831 | Mokelumne Hill | Undetermined; Chavez et al. 1984 suggest not eligible | Site of Blue Lakes Powerhouse |

| Site Type/Theme | Site No. | Reference | Site Features | Elev. (ft) | Area (m ²) | Quad Location | NRHP/CRHR Eligibility | Comments |
|--|-------------|--------------------|--|---|------------------------|----------------|--|----------|
| Historic–Mining Settlement | CA-CAL-964H | Chavez et al. 1984 | James Bar or Lower Bar; ruins of water-powered compressor plant, dry-laid stone walls and foundations for houses, stores, and other structure; excavated storage pit; mining shafts; adits; ditches; roadbeds; abundant historic artifacts | 700–1200 (according to site map the site extends to Pardee Reservoir) | 706,500 | Jackson | Undetermined; probably eligible, see Chavez et al. 1984. | |
| Prehistoric–Native American Occupation | P-S-13 | PAR 1992 | Bedrock mortar station, lithic and groundstone scatter | 540 | 667 | Jackson | Undetermined; recommended for eligibility by Parr 1992. | None |
| Prehistoric–Native American Occupation | P-S-4 | PAR 1992 | Bedrock mortar station with three mortar holes | 560 | 126 | Valley Springs | Undetermined; Parr 1992 suggests not eligible | None |
| Prehistoric–Native American Occupation | P-S-5 | PAR 1992 | Two bedrock mortar stations | 560 | 79 | Jackson | Undetermined; Parr 1992 suggests not eligible | None |
| Prehistoric–Native American Occupation | CA-AMA-299 | Chavez et al. | Three bedrock mortar stations with possible midden | 580 | 600 | Mokelumne Hill | Undetermined; probably eligible, see Chavez et al. 1984. | None |

| Site Type/Theme | Site No. | Reference | Site Features | Elev. (ft) | Area (m ²) | Quad Location | NRHP/CRHR Eligibility | Comments |
|--|--------------|--------------------|--|------------|------------------------|----------------|---|---|
| Prehistoric | CA-AMA-18 | Chavez et al. | Shallow midden | 600 | 2,000 | Mokelumne Hill | See CA-AMA-18(A) | CA-AMA-19/H(a), CA-AMA-19/H(b), CA-AMA-19, CA-AMA-18/H, CA-CAL-968/H, CA-AMA-18(a), CA-AMA-18(b) and CA-AMA-18 are all within close proximity. It is possible that some are duplicated site data. |
| Prehistoric–Native American Occupation | CA-AMA-18(A) | Chavez et al. | Midden, lithic scatter, groundstone fragments, faunal bone, hematite, charcoal, historic artifacts | 600 | 1,099 | Mokelumne Hill | Undetermined; probably eligible, see Chavez et al. 1984 | This site is located within CA-AMA-18/CA-CAL-0968 site boundary |
| Prehistoric–Native American Occupation | CA-AMA-18(B) | Chavez et al. 1984 | Dense midden, fire cracked rock, lithics, faunal bone, charcoal, hematite, groundstone fragments, historic artifacts | 600 | 4,710 | Mokelumne Hill | Undetermined; probably eligible, see Chavez et al. 1984 | This site is located within CA-AMA-18/CA-CAL-0968 site boundary |
| Prehistoric–Native American Occupation | P-S-2 | PAR 1992 | Lithic and groundstone concentration | 600 | 11,492 | Jackson | Undetermined; recommended for eligibility by Parr 1992 | None |
| Prehistoric–Native American Occupation | CA-AMA-282 | Chavez et al. 1984 | Two bedrock mortar stations; each station has one mortar cup | 600 | 300 | Mokelumne Hill | Undetermined; Chavez et al. 1984 suggests not eligible | None |
| Prehistoric–Native American Occupation | P-S-3 | PAR 1992 | Lithic scatter with bedrock mortar station consisting of four outcrops with one mortar cup each | 620–640 | 2,426 | Jackson | Undetermined; recommended for eligibility by Parr 1992 | None |

| Site Type/Theme | Site No. | Reference | Site Features | Elev. (ft) | Area (m ²) | Quad Location | NRHP/CRHR Eligibility | Comments |
|--|----------------|--------------------|--|------------|------------------------|----------------|---|---|
| Prehistoric– Native American Occupation | CA-CAL-951 | Chavez et al. 1984 | Bedrock mortar station with one outcrop with seven mortar cups | 620 | 14 | Mokelumne Hill | Undetermined; probably eligible, see Chavez et al. 1984 | Possibly associated with CA-CAL-959-H |
| Prehistoric– Native American Occupation | CA-Cal-969 | Chavez et al. 1984 | Three bedrock mortar stations, one mano (stone with flat side used to grind food) fragment, possible midden | 620 | 275 | Mokelumne Hill | Undetermined; probably eligible, see Chavez et al. 1984 | This site is located within CA-AMA-18/CA-CAL-0968 site boundary |
| Prehistoric | CA-AMA-19 | Chavez et al. 1984 | Lithic scatter. Site recorded by J. Davis in 1953 | 600 | 1,000 | Mokelumne Hill | See CA-AMA-19/H (A) | CA-AMA-19/H(a), CA-AMA-19/H(b), CA-AMA-19, CA-AMA-18/H, CA-CAL-968/H, CA-AMA-18(a), CA-AMA-18(b) and CA-AMA-18 are all within close proximity. It is possible that some are duplicated site data. |
| Prehistoric/Historic– Native American Occupation/ Placer Mining/ Homestead | CA-AMA-19/H(A) | Chavez et al. 1984 | Shafts, mining cuts, ditches, tailings piles, walls for corral, probable house walls, bedrock mortar station | 560–800 | 125,600 | Mokelumne Hill | Undetermined; probably eligible, see Chavez et al. 1984 | Location of Hunt Gulch (placer mining) and early homestead |
| Prehistoric/Historic –Native American Occupation/ Ranching | P-S-10 | PAR 1991 | 1861 Wildermuth House; rock fences, sandstone building, barn, possible house pits, midden lithic scatter and bedrock mortar stations | 585–665 | 68,571 | Valley Springs | Undetermined; recommended for eligibility by Parr 1992 | Building has been reconstructed |

| Site Type/Theme | Site No. | Reference | Site Features | Elev. (ft) | Area (m ²) | Quad Location | NRHP/CRHR Eligibility | Comments |
|--|----------------------------|--------------------|--|------------|------------------------|----------------------------|---|---|
| Prehistoric/Historic–Native American Occupation/ Mining | P-S-7 | PAR 1991 | Piled and stacked rock, mining test pits, lithics | 585–670 | 25,524 | Jackson | Undetermined; recommended for eligibility by Parr 1992 | Archival search for historic site |
| Prehistoric/Historic–Native American Occupation/Ethnic Mining Settlement | P-S-8 | PAR 1991 | Dwelling pads, waste rock reinforced rock trails, Asian or Italian ovens, bedrock mortar station, groundstone and lithic scatter | 595–650 | 58,420 | Jackson | Undetermined; recommended for eligibility by Parr 1992 | None |
| Prehistoric/Historic–Native American Occupation/Placer Mining | P-S-6 | PAR 1992 | Two rock foundations, earthen pad, depression, two rock dams, five prospect pits, prehistoric artifact scatter | 600–700 | 94,812 | Valley Springs | Undetermined; recommended for eligibility by Parr 1992 | Noted on 1870 Plat map; may contain subsurface material |
| Prehistoric/Historic–Native American Occupation/Mining Settlement | CA-AMA-18/H & CA-CAL-968/H | Chavez et al. 1984 | Middle Bar Mine and settlement; shafts, adits, ditches, roadbeds, concrete stamp mill foundations, hoisting works ruins, tailing piles, dry-laid stone features (tent, ramada platforms, house and commercial structural foundations), abundant historic artifacts | 600–760 | 1,036,200 | Mokelumne Hill and Jackson | Undetermined; probably eligible, see Chavez 1984 | Two historical burials recorded: child in Sargent graveyard and adult in the “little graveyard at Middle Bar;” California Historical Landmark No. 36. Within the site boundaries are three prehistoric sites: CA-CAL-0969, CA-AMA-18(A), and CA-AMA-18(B) |
| Prehistoric/Historic–Native American Occupation | CA-AMA-19/H(B) | Chavez et al. 1984 | Dense midden with fire-cracked rock, lithics, faunal bone, historic artifact | 560–800 | 4,710 | Mokelumne Hill | Undetermined; probably eligible, see Chavez et al. 1984 | This is a smaller prehistoric site within the larger historic site of CA-AMA-19/H(A) |

| Site Type/Theme | Site No. | Reference | Site Features | Elev. (ft) | Area (m ²) | Quad Location | NRHP/CRHR Eligibility | Comments |
|--|--------------|---------------------|--|---|------------------------|----------------|---|--|
| Prehistoric/Historic– Native American Occupation/Ranch | CA-CAL-967/H | Chavez et al. 1984 | Garaventa Homestead and Ranch; house foundation and mud-mortared stone walls, dry-laid schist wall (baking oven), placer mining | 600–760 | 196,250 | Mokelumne Hill | Undetermined; probably eligible, see Chavez et al. 1984 | CA-CAL-103 is within the boundary of CA-CAL-0967 |
| Historic– Mining | DS-1 | Pacific Legacy 1997 | One shaft, seven prospect pits, one foundation, one tent or cabin pad, one dirt road | 540–600 | 58,5216 | Valley Springs | Undetermined; site record indicates integrity of site is substantially impaired | None |
| Historic | DS-2 | Pacific Legacy 1997 | Rectangular pad, small level area, fieldstone retaining wall, stacked cement cylinder retaining wall, and a dump | 580 | 1,758 | Jackson | Undetermined; site record indicates that integrity is poor | None |
| Historic– Dump | DS-3 | Pacific Legacy 1997 | Continuous historic dump situated on in a drainage most likely associated with Pardee Dam construction | 445–290 according to site record. Note that USGS maps indicate elev is 445–600. | 58,875 | Jackson | Undetermined; site record indicates that the site integrity has been retained | None |
| Historic– Road System and Structures | DS-4 | Pacific Legacy 1997 | The northern locus consists of two stacked retaining walls three terraced roads, and a continuous trash scatter. The southern Locus consists of a formed concrete foundation and associated concrete footings, metal chutes, large sections and piles of concrete slurry, and a continuous trash scatter | 400–500 | 9,146 | Jackson | Undetermined; site record indicates that site integrity is impaired | None |

| Site Type/Theme | Site No. | Reference | Site Features | Elev. (ft) | Area (m ²) | Quad Location | NRHP/CRHR Eligibility | Comments |
|--|----------|------------------------|---|---------------------|------------------------|----------------|--|----------|
| Historic– Logging | DS-5 | Pacific Legacy 1997 | Wooden structure, possible loading dock, associated skid trails, a road, and a section of cement | 330 | 5,417 | Jackson | Undetermined; site record indicates that site integrity is impaired | None |
| Historic– Linear Water Conveyance | DS-6 | Pacific Legacy 1996 | Ditch, minimally several hundred meters of ditch is supported on the north side by stacked retaining wall | 380 | Undetermined | Jackson | Undetermined; site record indicates that the overall integrity has been impaired | None |
| Prehistoric– Bedrock Mortar Stations | DS-7 | Pacific Legacy 1997 | Three bedrock mortar stations with a total of four bedrock mortars | 620 (from site map) | 5,672 | Valley Springs | Undetermined; site record indicates that site integrity has been impaired | None |

Site DS-4 is a historic site with the remnants of a road system structure foundations associated with the construction of Pardee Dam. The site is divided into north and south loci. Features at the southern locus include a concrete foundation and associated concrete footings. The northern locus contains two stacked-rock retaining walls. Both southern and northern loci have three terraced roads with road cuts and talus piles.

Site DS-5 is associated with logging. Features recorded at this site include a wooden wharf-like structure built into a hill, a road, a dendric system of skid trails and associated soil berm (all trails fan out from the wooden Wharf-like structure), and a section of formed concrete embedded into the hillside.

Site DS-6 is described as a linear water conveyance system. The site is situated along the 380foot contour interval on the south side of the Mokelumne River along the east side of Rag Gulch. The linear water conveyance system is described as having been destroyed in places from construction of the Pardee Dam.

Inundation Zone 601 Feet Elevation to 614 Feet Elevation

A total of fifteen historic sites, 16 prehistoric sites, and five multi-component sites, excluding the sites described in this section, were identified in the inundation zone below 614 feet elevation (Table 17-2).

The Middle Bar Bridge (Bridge #30C-16) was built in 1912 and is listed on the NRHP. The bridge is located at the upstream end of the reservoir. The bridge, spanning 204 feet across the Mokelumne River, is near the town of Paloma. It is an example of a steel Pratt truss bridge with a one-lane single span. This is one of two remaining bridges in California built by Clinton Bridge and Iron Works. The Clinton Bridge and Irons Works built thousands of bridges in the West. The Middle Bar Bridge is significant under Criterion A and Criterion C.

Although not listed on the NRHP or CRHR, both Big Bar (No. 41) and Middle Bar (No. 36) mining sites are listed as California Historical Landmarks. The site of the mining town of Middle Bar is currently inundated by Pardee Reservoir part of each year. Middle Bar is located 2.8 miles south of SR 49 on Middle Bar Road at the Mokelumne River, 4.5 miles south of the town of Jackson. The site is on both sides of the Mokelumne River, connected by Middle Bar Bridge.

After a visit in 1850, Friedrich Gerstaecker described Middle Bar as a “little town or mining place.” The remains of the Middle Bar archaeological site (CA-AMA-18/H and CA-CAL-0968/H) is on private property according to the 1980 Survey of California Registered Historical Landmarks. This landmark was listed on the California Register of Historic Landmarks in 1932. Middle Bar is probably eligible for CRHR (Chavez et al. 1984).

Big Bar (CA-CAL-956H), also on the Mokelumne River, was established in 1848. Ferry boats operated at this location until 1852 when the first bridge was built. Big Bar is probably not eligible for CHHR (Chavez et al. 1984).

CA-AMA-18/H and CA-CAL-0968/H (one site located at the border of two counties) was recorded by Chavez in September of 1983 (Chavez et al. 1984). The site is described as the Middle Bar settlement and hard-rock mining complex, although it is known that the area was first the site of placer mining. Features recorded at the site include dry-laid stone walls, excavated tent platforms, a trench, artifact scatter, mining shaft and depression, mud-mortared stone building, shallow dug-out terrace, ferry anchor, house depression, brick pile and pit, stamp mill foundation, house/mansion remains, a round pit, structure pit and artifact scatter, structural remains, house depression, walls, terraces and pits, feature area of walls, shafts and an oven, a feature area consisting of house walls, a well, and a ditch. Although the Middle Bar Bridge forms a link between the historic components of the site on either side of the Mokelumne River, this is not considered a feature of this site.

One feature described as walls, shafts, and terraces may be associated with the “Middle Bar Quartz Mines” indicated on the General Land Office map of 1886.

Within the boundaries of CA-AMA-18/H and CA-CAL-0986/H there are multiple prehistoric sites (CA-CAL-0969, CA-AMA-18(A) and CA-AMA-18(B)). These sites are summarized in Table 17-2. In addition, two features described under the historic component of the site contain prehistoric artifacts. These features with prehistoric artifacts include a predominant historic artifact scatter with two possible metate “slabs” and a feature area with walls, a well, and an oven described as containing three prehistoric pestles.

New Pardee Recreation Area

Site PS-6 is a large multi-component site located in the vicinity of the facility. This site may be affected by construction of the New Pardee Recreation Area.

Wildermuth House (PS-10) is suggested to be eligible for inclusion on the NRHP (PAR Environmental Services Inc. 1991). Although the site records states that an architectural evaluation has been completed, no documentation regarding the evaluation was found. This site also contains a prehistoric component with possible house pit feature and dark greasy midden. There is a high possibility that this site possesses human remains and it is probably eligible for CRHR and NRHP (PAR Environmental Services Inc. 1991).

Site PS-10 is a multi-component site consisting of the 1861 Wildermuth House and associated features and a prehistoric occupation/village site that was occupied into the ethnographic period. The site is located within the Valley Springs, California, USGS Quadrangle (T4N R10E, section 1), Calaveras County. The site setting is an open meadow on the west shore of Pardee Reservoir, with an unnamed spring located at the site. The elevation of the site is

between 585 feet and 665 feet. No indication is given on the site record of the elevation of the prehistoric component of this site. Further site recordation would be necessary to determine whether the prehistoric component of this site would be affected by the enlargement of Pardee Reservoir.

The site was inhabited by the Central and Northern Miwok before and after the Gold Rush (PAR Environmental Services Inc. 1991). Features include possible house pits, dark greasy middens, artifact scatter, and bedrock mortar stations. Prehistoric artifacts recorded on the surface of the site include debitage, groundstone fragments, and lithic tools (no diagnostic tools). The site record states there is no physical evidence of Native American or Euroamerican interments at the site, but dark greasy middens usually signify human interments (PAR Environmental Services Inc. 1991). The site record stresses that no subsurface testing was conducted and the evaluation of the site was cursory.

The historic component of the site is the Wildermuth home constructed in 1861. Along with the home, there are several associated features such as rock fences, a sandstone building used as a granary, and the remnants of a bar. The house was built on top of the prehistoric component of the site. Although no architectural evaluation of the property was available, the site record states that this house appears to meet NRHP criterion C, representing the work of a master. The house, classified as Vernacular Georgian, was built by Scottish master stonemason William A. Watt and is one of five known examples of his work (PAR Environmental Services Inc. 1991).

Jackson Creek Saddle Dams

Identified cultural resources in the vicinity of Jackson Creek saddle dams include PD-1, PD-2, D-3 and two isolated finds.

Site PD-1 consists of a number of historic features including a wooden barn, three stacked rock alignments, a rectangular earthen pad, a rock retaining wall, a possible trash pit, and a single course rock alignment.

Site PD-2 is a historic period site consisting of nine formed concrete pier footings.

Site D-3 is a segment of an earthen ditch known as the Kreth Ditch. The ditch is oriented roughly east/west and follows the 580-foot contour in the vicinity of the Jackson Creek spillway. There is also a small arm of the ditch that shoots off the main ditch and runs along the 540-foot contour. The earthen ditch cuts across Carson Creek at the point where the creek drains into the north arm of Pardee Reservoir. The ditch is approximately 6–7 feet wide.

Environmental Consequences

Significance Criteria

The criteria used for determining the significance of an impact on cultural resources are based on Appendix G of the State CEQA Guidelines (Environmental Checklist) and professional standards and practices. Impacts on cultural resources may be considered significant if implementation of an alternative would:

- cause a substantial adverse change in the significance of a historical resource as defined in Guidelines Section 15064.5,
- cause a substantial adverse change in the significance of an archaeological resource pursuant to Guidelines Section 15064.5,
- directly or indirectly destroy a unique paleontological resource or site or unique geologic feature, or
- disturb any human remains, including those interred outside of formal cemeteries.

Under California regulations, adverse effects need only be analyzed if a resource meets the eligibility criteria for listing on the California Register of Historical Resources. Impacts are considered to be significant when they may change the significance of a resource. Demolition, replacement, substantial alteration, and relocation of historical resources are examples of actions that may change the significance of a historical resource.

Under federal regulations, adverse effects need only be analyzed if a resource meets the eligibility criteria for listing on the National Register of Historic Places.

The criteria for eligibility (36 CFR 60.4) states that:

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association. Federal eligibility criteria include the following:

- that are associated with events that have made a significant contribution to the broad patterns of our history; or
- that are associated with the lives of persons significant in our past; or
- that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

- that have yielded, or may be likely to yield, information important in prehistory or history.

Federal regulations define an adverse effect to a resource when the effect may diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Adverse effects on historic properties can include:

- Physical destruction or alteration of all or part of the property;
- Isolation from or alteration to the property's setting when that character contributes to the property's qualification for the National Register of Historic Places;
- Introduction of visual, audible, or atmospheric elements that are out of character with the property or that alter its setting;
- Neglect of a property resulting in its deterioration or destruction; and
- Transfer, lease, or sale of the property.

Summary of Cultural Resources Significance Findings

Of cultural resources discussed above, Walnut Grove Branch of the Southern Pacific Railroad and Victory Trees have been evaluated and determined eligible for the NRHP or the CRHR. Pardee Dam and Middle Bar Bridge are both listed on the NRHP.

Segment A from the intake facility crosses the Walnut Grove Branch of the Southern Pacific Railroad at Freeport Boulevard. Although there are additional elements in the entire historic district, at Freeport Boulevard contributing elements are limited to the railroad grade. The project would not affect the Walnut Grove Branch because the pipeline would tunnel under the feature.

The Kentucky Branch of the Southern Pacific Railroad (P-39-000002) crosses Segment X near Camanche Reservoir. This resource has been determined to be ineligible for listing on the NRHP. Also, along Segment W, five bridges (29C0230 [Coyote Creek], 29C0249 [Dry Creek], 29C0253 [Dry Creek Overflow], 29C0254 [Coyote Creek], and 29C0246 [South Fork Coyote Creek]) are ineligible for the NRHP.

Neither Middle Bar nor Big Bar settlement is included in the NRHP or CRHR though both are California Historical Landmarks. Today, all California Historical Landmarks are automatically included on the CRHR. Big Bar settlement is probably not eligible for CRHR, while Middle Bar settlement is probably eligible.

No other sites in the project area have been evaluated for eligibility.

Less-than-Significant Impacts

Alternative 1 would not result in any construction-related or operation-related cultural impacts associated with construction of FRWP facilities. Alternatives 2–5 and Alternative 6 would not result in less than significant impacts on cultural resources.

Significant Impacts and Mitigation Measures

Alternatives 2-5

Impact 17-1: Disturbance of Known Cultural Resources

Construction of project components could affect known cultural resources described above under “Affected Environment” and listed in Table 17-1. Generally, impacts of Alternatives 2–5 would be significant. To resolve adverse effects to historic properties and reduce impacts to less-than-significant levels, implement Mitigation Measure 17-1.

Mitigation Measure 17-1: Prepare and Implement a Cultural Resources Significance Evaluation, Effects Analysis, and Mitigation and Monitoring Plan for Known Cultural Resources

As required by Section 106 of the NHPA, ACHP Regulation 36 CFR Part 800: Protection of Historic Properties, and CEQA, known cultural resources must be avoided or their significance evaluated according to federal and state criteria. The impacts of the project alternatives on these resources must then be determined. The following steps should be taken to fulfill these requirements:

- Known cultural resources should be avoided if doing so is feasible.
- If avoidance is not feasible, then the significance of these resources should be assessed using federal and state criteria. If the resources are determined to be significant, the adverse effects to historic properties should be resolved through consultation with the SHPO and the ACHP, resulting in an MOA. For archaeological sites, mitigation usually consists of data recovery excavations to retrieve the data that would be lost through disturbance. For extant cultural features, mitigation usually consists of photographic, graphical, and text documentation to record the data that would be lost through disturbance.

Mitigation 17-1 would apply to sites where records are old or incomplete, and materials recovered during previous investigations are not sufficient to evaluate the site’s significance. For example, Klotz Mound (site P-34-71/CA-SAC-44) located near the Freeport Intake site, was recorded in 1934, may contain human burials and has been heavily disturbed during this century.

Impact 17-2: Disturbance of Unidentified Cultural Resources

Portions of the project were not surveyed for the presence of cultural resources. Buried or previously unidentified cultural resources are likely to be discovered during construction. Impacts on buried or unidentified cultural resources are significant. To resolve adverse effects to historic properties and reduce this impact to a less-than-significant level, implement Mitigation Measures 17-2 and 17-3.

Mitigation Measure 17-2: Prepare and Implement a Cultural Resources Inventory, Significance Evaluation, Effects Analysis, and Mitigation and Monitoring Plan for Unidentified Cultural Resources

As required by procedures outlined in Section 106 of the NHPA, ACHP Regulation 36 CFR Part 800: Protection of Historic Properties, and CEQA, cultural resources must be located and evaluated and the impacts of the project on these resources must be determined. The following steps can be taken to fulfill these requirements:

- Conduct a records search at CHRIS to identify known cultural properties within the project region (records searches have been completed).
- Federal regulations require consultation with the SHPO, federally recognized Native American tribes, and interested members of the public during the Section 106 compliance process. Tribes are also consulted regarding the presence of sites of religious or cultural significance.
- Under state regulations, the California Native American Heritage Commission identifies Native American groups and individuals who may wish to be involved in the effort to identify cultural resources of importance to the Native American community.
- Conduct a cultural resources survey in unsurveyed areas as identified and recommended by CHRIS.
- Avoid newly identified cultural resources if it is feasible to do so.
- If avoidance is not feasible, implement Mitigation Measure 17-1.

Mitigation Measure 17-3: Prepare and Implement a Plan for the Unanticipated Discovery of Cultural Resources

Because of changes to the landscape of the project region during prehistoric and historic periods, the limitations of surface survey techniques, and obstructions to the visibility of the ground surface, previously unknown cultural resources likely will be discovered during pipeline construction. A plan to manage these resources should be developed and, at a minimum, should include the following components:

- If cultural resources—such as chipped or ground stone, historic debris, building foundations, or human bone—are inadvertently discovered during

construction activities, the construction contractor should adhere to the following:

- ❑ stop work immediately in that area within 100 feet of the find;
 - ❑ notify FRWA, City of Sacramento, and Reclamation; and
 - ❑ retain a qualified archaeologist to assess the significance of the find and, if necessary, to develop appropriate treatment measures in consultation with the SHPO.
- If human bone is found as a result of any construction activities, the construction contractor will stop work and notify the appropriate county coroner in compliance with the California Public Resources Code Section 5097. On federal land, the federal land manager will be notified.

Alternative 6

As described in Chapter 2, “Project Description,” Alternative 6 consists of enlarging Pardee Reservoir and conveying water from the Sacramento River. Alternative 6 includes the following project components: enlarge Pardee Reservoir (which includes additional components), Freeport intake facility, pipeline from the intake facility to the Zone 40 Surface WTP, and the Zone 40 Surface WTP. Though slightly different in size, the intake facility, pipeline from the intake facility to the Zone 40 Surface WTP, and the Zone 40 Surface WTP project components are the same as those that make up Alternative 5. Therefore, several of the impacts associated with Alternative 5 (described above) are also associated with Alternative 6 and are restated below. Additionally, impacts associated with the enlarge Pardee Reservoir component of this alternative are described below. The types of significant impacts on cultural resources and mitigation measures recommended to resolve adverse effects and reduce impacts to less-than-significant levels are provided below. Impacts to cultural resources include inundation from the expansion of the existing reservoir. All resources at or below the maximum flood level of the enlarged reservoir at 614 feet are subject to this impact. Fluctuation of the reservoir elevation would have the greatest impact on archaeological sites. Site disturbance can include weathering, erosion and displacement of artifacts. Other impacts to cultural resources in the project area that may not be impacted directly by inundation are those associated with the construction of a new dam, spillways, and recreation sites. Construction activities would involve building access roads, borrow pits, quarry sites for building materials, and utility lines. New roads may also affect archaeological sites by increasing public access to sites.

Impact 17-3: Disturbance of Known Cultural Resources at Pardee Reservoir that are Listed on the National Register of Historic Places

The proposed enlargement of Pardee Reservoir would have significant impacts on Pardee Dam (JRP 1994) since construction of a new dam would require breaching and flooding the existing dam. The project would also have significant impact on Middle Bar Bridge since raising the reservoir level would require removing the structure. Both are historic properties listed on the NRHP. To resolve adverse effects to historic properties and reduce these impacts to less-than-significant levels, implement Mitigation Measure 17-4.

Mitigation Measure 17-4: Develop and Implement a Data Recovery Plan and Prepare Historic American Engineering Record Documentation on Pardee Dam and Middle Bar Bridge

Where avoidance to structures is impossible, typical mitigation to reduce the impact would be to develop and implement a data recovery plan including preparation of Historic American Engineering Record (HAER) documentation. Pardee Dam was previously documented (HAER Survey Number CA-168, CA-168-A, CA-168-B, CA-168-C, CA-168-D). Prior to any impact on the Pardee Dam, an update to the original HAER documentation may be needed. Additional elements of the data recovery plan may include an interpretive display at the site with historic photos of the original dam along with textual displays on the history and significance of the site. Also, significant architectural features of the new dam could reflect the original dam. The name of the new dam should be differentiated from Pardee Dam.

Mitigation for removing Middle Bar Bridge would also include development and implementation of a data recovery plan including HAER documentation. Middle Bar Bridge has not been previously HAER documented. An interpretive display in the vicinity of the bridge may also be a component of the data recovery plan to reduce the impact to this resource. This mitigation would apply for both CEQA and NHPA compliance, reducing these impacts to a less-than-significant level and resolving the adverse effects to this historic property.

Impact 17-4: Disturbance to Other Known Cultural Resources from the Freeport Intake Facility to the Zone 40 Surface Water Treatment Plant and at Pardee Reservoir

Impacts associated with the project components from the Freeport intake facility to the Zone 40 Surface WTP would be the same as for Alternatives 2–5, described above.

Construction of the enlarge Pardee Reservoir component could affect the known cultural resources described under Affected Environment and listed in Table 17-2. This impact is significant. To resolve adverse effects to historic properties

and reduce impacts to a less-than-significant, implement Mitigation Measure 17-1 as described above.

Impact 17-5: Disturbance of Unidentified Cultural Resources from the Freeport Intake Facility to the Zone 40 Surface Water Treatment Plant and at Pardee Reservoir

Impacts associated with the project components from the Freeport intake facility to the Zone 40 Surface WTP would be the same as for Alternatives 2–5, described above.

Buried or previously unidentified cultural resources may be discovered in areas of proposed construction activity associated with new dam construction or inundation areas. Approximately 50% of the proposed project area has been surveyed for archaeological resources. An impact on buried or unidentified cultural resources is significant. To resolve adverse effects to historic properties and reduce this impact to a less-than-significant level, implement Mitigation Measures 17-2 and 17-3 as described above.