CLASS III INVENTORY/PHASE I SURVEY, WOODVILLE PUD WELL REPLACEMENT PROJECT, TULARE COUNTY, CALIFORNIA

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MANAGEMENT SUMMARY

An intensive Class III cultural resources inventory/Phase I survey was conducted for the Woodville Public Utility District (PUD) Well Replacement Project, Tulare County, California. The project is located in Section 15, Township 21 South, Range 26 East, Mount Diablo Base and Meridian (M.D.B.M.). ASM Affiliates, Inc., conducted this study, with David S. Whitley, Ph.D., RPA, serving as principal investigator. The study was undertaken to assist with compliance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and the California Environmental Quality Act (CEQA).

The proposed project consists of an upgrade to existing water infrastructure in the census-designated community of Woodville, California. The project will utilize existing, north-south trending asphalt roads (Woodville Road; Road 164) that connect an existing dirt road right-of-way. The proposed well installation will occur on land dedicated to the Woodville PUD. The pipelines will be installed on public lands secured with encroachment permits. The horizontal Area of Potential Effect (APE) for the project, which totals approximately 9-acres, was defined as the area of potential ground-surface disturbance, including access, staging and lay-down areas. The vertical APE was defined as the maximum depth of Project grading, set at 25-feet.

A records search of site files and maps was conducted on 16 September 2019 at the Southern San Joaquin Valley Archaeological Information Center, California State University, Bakersfield. A search of the Native American Heritage Commission (NAHC) *Sacred Lands File* was also completed on 16 September 2019. These investigations determined that the study area had not been previously surveyed and that no cultural resources were known to exist within the project APE or its vicinity.

Coordination letters were sent on behalf of the Woodville PUD to five Native American tribes on the contact list provided by the NAHC. No knowledge of tribal resources or concerns were expressed in the responses received.

The Class III inventory/Phase I survey fieldwork was conducted on October 24, 2019 with parallel transects spaced at 15-meter intervals walked along the approximately 9-acre total survey area. No cultural resources of any kind were identified within the survey area. Based on these results, the Woodville PUD Well Replacement Project does not have the potential to result in significant impacts or adverse effects to historical resources or historic properties, and a finding of No Historic Properties Affected is recommended.

1. INTRODUCTION AND REGULATORY CONTEXT

ASM Affiliates, Inc., was retained by the Woodville Public Utilities District to conduct an intensive Class III inventory/Phase I cultural resources survey for the Woodville PUD Well Replacement Project. This is located just west of the community of Poplar, Tulare County, California (Figure 1). The study was undertaken to assist with compliance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and the California Environmental Quality Act (CEQA). The investigation was conducted, specifically, to ensure that significant impacts or adverse effects to historical resources or historic properties do not occur as a result of project construction.

This current study included:

- A background records search and literature review to determine if any known cultural resources were present in the project zone and/or whether the area had been previously and systematically studied by archaeologists;
- A search of the NAHC *Sacred Lands File* and contact with local Native American tribes to determine if any traditional cultural places or cultural landscapes have been identified within the area;
- An on-foot, intensive inventory of the study area to identify and record previously undiscovered cultural resources and to examine known sites; and
- A preliminary assessment of any such resources found within the subject property.

This study was conducted by ASM Affiliates, Inc., of Tehachapi, California. David S. Whitley, Ph.D., RPA, served as principal investigator and Robert Azpitarte, B.A., ASM Associate Archaeologist, conducted the fieldwork.

This document constitutes a report on the Class III inventory/Phase I survey. Subsequent chapters provide background to the investigation, including historic context studies; the findings of the archival records search; Native American consultation; a summary of the field surveying techniques employed; and the results of the fieldwork. We conclude with management recommendations for the Project area.

1.1 PROJECT LOCATION

The project area is located within census-designated community of Woodville, Tulare County, California; specifically, in Section 15, Township 21 South, Range 26 East (T21S/R26E), Mount Diablo Base and Meridian (MDBM). It is situated less than 10-miles west of the City of Porterville and approximately 11 ½- miles southeast of the City of Tulare, California. This places the project area on the open flats of the San Joaquin Valley, and just over 1-mile (mi) south of the Tule River. Elevation within the project area, which is flat, is approximately 330-feet (ft) above mean sea level (amsl).

1.2 PROJECT DESCRIPTION AND APE

The Woodville PUD proposes the construction and installation of a new water well and associated pipeline within the community of Woodville, California (Figure 1). The proposed Project will involve the placement of a new water well and installation of pipeline along the southern edge of town. The pipeline includes two segments: one trending north-south along Road 164 for 750-ft, and the other continuing from Road 164, then east adjacent to a dirt road, then deviating north along Woodville Road for a total of 3350-ft. The proposed pipeline installation will total approximately 4,300 feet.

The proposed study, which involves existing rights-of-way, will utilize existing, north-south trending asphalt roads (Woodville Road; Road 164) that connect an existing dirt road right-of-way adjacent to an east-west trending irrigation ditch. No access road construction will be required for the proposed Project. The Area of Potential Effect (APE) for the project was defined as the area of potential ground surface disturbance resulting from project construction and use, which is limited to Woodville PUD-owned lands. This comprises the work area for the project, which contains staging and lay-down areas, the proposed pipeline corridors, and location of the proposed water well.

The total horizontal APE is approximately 9-acres (ac) in size. The vertical APE, consisting of the maximum depth of potential grading and earth disturbance, is 25-ft, the proposed maximum excavation depth for the pipeline.

1.3 REGULATORY CONTEXT

1.3.1 CEQA

CEQA is applicable to discretionary actions by state or local lead agencies. Under CEQA, lead agencies must analyze impacts to cultural resources. Significant impacts under CEQA occur when "historically significant" or "unique" cultural resources are adversely affected, which occurs when such resources could be altered or destroyed through project implementation. Historically significant cultural resources are defined by eligibility for or by listing in the California Register of Historical Resources (CRHR). In practice, the federal NRHP criteria (below) for significance applied under Section 106 are generally (although not entirely) consistent with CRHR criteria (see PRC § 5024.1, Title 14 CCR, Section 4852 and § 15064.5(a)(3)).

Significant cultural resources are those archaeological resources and historical properties that:

(A) Are associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

(B) Are associated with the lives of persons important in our past;

(C) Embody the distinctive characteristics of a type, period, region, or method of construction, or represent the work of an important creative individual, or possess high artistic values; or

(D) Have yielded, or may be likely to yield, information important in prehistory or history.

Unique resources under CEQA, in slight contrast, are those that represent:

> An archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:
>
> (1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
>
> (2) Has a special and particular quality such as being the oldest of its type or the best available example of its type.
>
> (3) Is directly associated with a scientifically recognized important prehistoric or historic event or person (PRC § 21083.2(g)).

Preservation in place is the preferred approach under CEQA to mitigating adverse impacts to significant or unique cultural resources.

1.3.2 NHPA Section 106

NHPA Section 106 is applicable to federal undertakings, including projects financed or permitted by federal agencies regardless of whether the activities occur on federally managed or privately owned land. Its purpose is to determine whether adverse effects will occur to significant cultural resources, defined as "historical properties" that are listed in or determined eligible for listing in the National Register of Historic Places (NRHP). The criteria for NRHP eligibility are defined at 36 CFR § 60.4 as follows:

> 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, and that:
>
> (A) are associated with events that have made a significant contribution to the broad patterns of our history; or
>
> (B) are associated with the lives of persons significant in our past; or
>
> (C) 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
>
> (D) have yielded or may be likely to yield, information important in prehistory or history.

There are, however, restrictions on the kinds of historical properties that can be NRHP listed. These have been identified by the Advisory Council on Historic Preservation (ACHP), as follows:

> Ordinarily cemeteries, birthplaces, or graves of historical figures, properties owned by religious institutions or used for religious purposes, structures that have been moved from

their original locations, reconstructed historic buildings, properties primarily commemorative in nature, and properties that have achieved significance within the past 50 years shall not be considered eligible for the National Register. However, such properties will qualify if they are integral parts of districts that do meet the criteria or if they fall within the following categories:

(a) A religious property deriving primary significance from architectural or artistic distinction or historical importance; or

(b) A building or structure removed from its original location but which is significant primarily for architectural value, or which is the surviving structure most importantly associated with a historic person or event; or

(c) A birthplace or grave of a historical figure of outstanding importance if there is no appropriate site or building directly associated with his productive life.

(d) A cemetery which derives its primary significance from graves of persons of transcendent importance, from age, from distinctive design features, or from association with historic events; or

(e) A reconstructed building when accurately executed in a suitable environment and presented in a dignified manner as part of a restoration master plan, and when no other building or structure with the same association has survived; or

(f) A property primarily commemorative in intent if design, age, tradition, or symbolic value has invested it with its own exceptional significance; or

(g) A property achieving significance within the past 50 years if it is of exceptional importance. (http://www.achp.gov/nrcriteria.html)

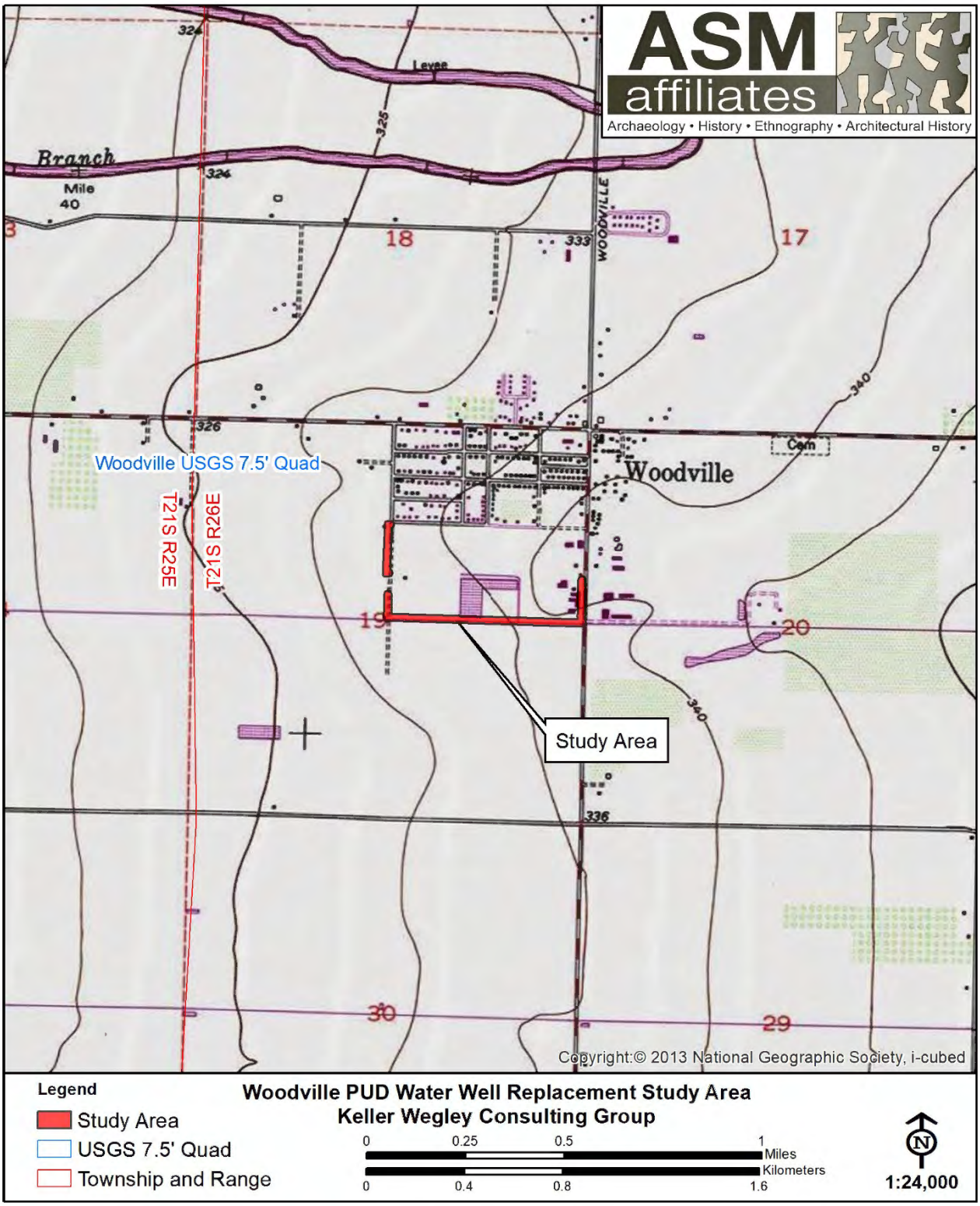

Figure 1. Location of the Woodville PUD Well Replacement Project, Tulare County, California.

2. ENVIRONMENTAL AND CULTURAL BACKGROUND

2.1 ENVIRONMENTAL BACKGROUND AND GEOARCHAEOLOGICAL SENSITIVITY

As noted above, the study area is located at about 330-ft elevation on the open flats of the San Joaquin Valley, just over a mile south of the Tule River (south branch). This river is perennial only above Porterville, east of the study area, with seasonal flow occurring in drainages below that point.

Prior to the appearance of agriculture, starting in the nineteenth century, this location would have been prairie grasslands, grading into tree savannas in the foothills to the east (Preston 1981). Historically, and likely prehistorically, riparian environments would have been present along the drainages, waterways and marshes. The study area and immediate surroundings have been farmed and grazed for many years and no native vegetation is present. Perennial bunchgrasses such as purple needlegrass and nodding needlegrass most likely would have been the dominant plant cover in the study area prior to cultivation.

The study area falls on the Tule River Fan. According to the geoarchaeological model developed by Meyer et al. (2010), the study area has a very low potential for buried archaeological deposits. Buried sites and cultural resources are therefore considered to be unlikely within the Project APE.

2.2 ETHNOGRAPHIC BACKGROUND

Penutian-speaking Yokuts tribal groups occupied the southern San Joaquin Valley region and much of the nearby Sierra Nevada. Ethnographic information about the Yokuts was collected primarily by Powers (1971, 1976 [originally 1877]), Kroeber (1925), Gayton (1930, 1948), Driver (1937), Latta (1977) and Harrington (n.d.). For a variety of historical reasons, existing research information emphasizes the central Yokuts tribes who occupied both the valley and particularly the foothills of the Sierra. The northernmost tribes suffered from the influx of Euro-Americans during the Gold Rush and their populations were in substantial decline by the time ethnographic studies began in the early twentieth century. In contrast, the southernmost tribes were partially removed by the Spanish to missions and eventually absorbed into multi-tribal communities on the Sebastian Indian Reservation (on Tejon Ranch), and later the Tule River Reservation and Santa Rosa Rancheria to the north. The result is an unfortunate scarcity of ethnographic detail on southern Valley tribes, especially in relation to the rich information collected from the central foothills tribes where native speakers of the Yokuts dialects are still found. Regardless, the general details of indigenous life-ways were similar across the broad expanse of Yokuts territory, particularly in terms of environmentally influenced subsistence and adaptation and with regard to religion and belief, which were similar everywhere.

Following Kroeber (1925: Plate 47), the study area most likely lies in Chunut Yokuts territory. The principal historic village for this group was *Ch'iuta,* located on the north bank of the Tule

River (Kroeber 1925: Plate 47; Latta1977:195). No historic villages are recorded for the immediate project area, per se, by Kroeber (1925) or by Latta (1977), however.

The Yokuts settlement pattern was largely consistent, regardless of specific tribe involved. Winter villages were typically located along lakeshores and major stream courses (as these existed circa AD 1800), with dispersal phase family camps located at elevated spots on the valley floor and near gathering areas in the foothills.

Most Yokuts groups, again regardless of specific tribal affiliation, were organized as a recognized and distinct tribelet; a circumstance that almost certainly pertained to the tribal groups noted above. Tribelets were land-owning groups organized around a central village and linked by shared territory and descent from a common ancestor. The population of most tribelets ranged from about 150 to 500 peoples (Kroeber 1925).

Each tribelet was headed by a chief who was assisted by a variety of assistants, the most important of whom was the *winatum*, a herald or messenger and assistant chief. A shaman also served as religious officer. While shamans did not have any direct political authority, as Gayton (1930) has illustrated, they maintained substantial influence within their tribelet.

Shamanism is a religious system common to most Native American tribes. It involves a direct and personal relationship between the individual and the supernatural world enacted by entering a trance or hallucinatory state (usually based on the ingestion of psychotropic plants, such as jimsonweed or more typically native tobacco). Shamans were considered individuals with an unusual degree of supernatural power, serving as healers or curers, diviners, and controllers of natural phenomena (such as rain or thunder). Shamans also produced the rock art of this region, depicting the visions they experienced in vision quests believed to represent their spirit helpers and events in the supernatural realm (Whitley 1992, 2000).

The centrality of shamanism to the religious and spiritual life of the Yokuts was demonstrated by the role of shamans in the yearly ceremonial round. The ritual round, performed the same each year, started in the spring with the jimsonweed ceremony, followed by rattlesnake dance and (where appropriate) first salmon ceremony. After returning from seed camps, fall rituals began in the late summer with the mourning ceremony, followed by first seed and acorn rites and then bear dance (Gayton 1930:379). In each case, shamans served as ceremonial officials responsible for specific dances involving a display of their supernatural powers (Kroeber 1925).

Subsistence practices varied from tribelet to tribelet based on the environment of residence. Throughout Native California, and Yokuts territory in general, the acorn was a primary dietary component, along with a variety of gathered seeds. Valley tribes augmented this resource with lacustrine and riverine foods, especially fish and wildfowl. As with many Native California tribes, the settlement and subsistence rounds included the winter aggregation into a few large villages, where stored resources (like acorns) served as staples, followed by dispersal into smaller camps, often occupied by extended families, where seasonally available resources would be gathered and consumed.

Although population estimates vary and population size was greatly affected by the introduction of Euro-American diseases and social disruption, the Yokuts were one of the largest, most successful groups in Native California. Cook (1978) estimates that the Yokuts region contained 27 percent of the aboriginal population in the state at the time of contact; other estimates are even higher. Many Yokuts people continue to reside in the southern San Joaquin Valley today.

2.3 PRE-CONTACT ARCHAEOLOGICAL BACKGROUND

The southern San Joaquin Valley region has received minimal archaeological attention compared to other areas of the state. In part, this is because the majority of California archaeological work has concentrated in the Sacramento Delta, Santa Barbara Channel, and central Mojave Desert areas (see Moratto 1984). Although knowledge of the region's prehistory is limited, enough is known to determine that the archaeological record is broadly similar to south-central California as a whole (see Gifford and Schenk 1926; Hewes 1941; Wedel 1941; Fenenga 1952; Elsasser 1962; Fredrickson and Grossman 1977; Schiffman and Garfinkel 1981). Based on these sources, the general prehistory of the region can be outlined as follows.

Initial occupation of the region occurred at least as early as the *Paleoindian Period*, or prior to about 10,000 years before present (YBP). Evidence of early use of the region is indicated by characteristic fluted and stemmed points found around the margin of Tulare Lake, in the foothills of the Sierra, and in the Mojave Desert proper.

Both fluted and stemmed points are particularly common around lake margins, suggesting a terminal Pleistocene/early Holocene lakeshore adaptation similar to that found throughout the far west at the same time; little else is known about these earliest peoples. Over 250 fluted points have been recovered from the Witt Site (CA-KIN-32), located along the western shoreline of ancient Tulare Lake north of the study area, demonstrating the importance of this early occupation in the San Joaquin Valley specifically (see Fenenga 1993). Additional finds consist of a Clovis-like projectile point discovered in a flash-flood cut-bank near White Oak Lodge in 1953 on Tejon Ranch (Glennan 1987a, 1987b). More recently, a similar fluted point was found near Bakersfield (Zimmerman et al. 1989), and a number are known from the Edwards Air Force Base and Boron area of the western Mojave Desert. Although human occupation of the state is well-established during the Late Pleistocene, relatively little can be inferred about the nature and distribution of this occupation with a few exceptions. First, little evidence exists to support the idea that people at that time were big-game hunters, similar to those found on the Great Plains. Second, the western Mojave Desert evidence suggests small, very mobile populations that left a minimal archaeological signature. The evidence from the ancient Tulare Lake shore, in contrast, suggests much more substantial population and settlements which, instead of relying on big game hunting, were tied to the lacustrine lake edge. Variability in subsistence and settlement patterns is thus apparent in California, in contrast to the Great Plains.

Substantial evidence for human occupation across California, however, first occurs during the middle Holocene, roughly 7,500 to 4,000 YBP. This period is known as the *Early Horizon*, or alternatively as the Early Millingstone along the Santa Barbara Channel. In the south, populations concentrated along the coast with minimal visible use of inland areas. Adaptation emphasized hard seeds and nuts with tool-kits dominated by mullers and grindstones (manos and metates).

Additionally, little evidence for Early Horizon occupation exists in most inland portions of the state, partly due to a severe cold and dry paleoclimatic period occurring at this time, although a site deposit dating to this age has been identified along the ancient Buena Vista shoreline in Kern County to the south (Rosenthal et al. 2007). Regardless of specifics, Early Horizon population density was low with a subsistence adaptation more likely tied to plant food gathering than hunting.

Environmental conditions improved dramatically after about 4,000 YBP during the *Middle Horizon* (or Intermediate Period). This period is known climatically as the Holocene Maximum (circa 3,800 YBP) and was characterized by significantly warmer and wetter conditions than previously experienced. It was marked archaeologically by large population increase and radiation into new environments along coastal and interior south-central California and the Mojave Desert (Whitley 2000). In the Delta region to the north, this same period of favorable environmental conditions was characterized by the appearance of the Windmiller culture which exhibited a high degree of ritual elaboration (especially in burial practices) and perhaps even a rudimentary mound-building tradition (Meighan, personal communication, 1985). Along with ritual elaboration, Middle Horizon times experienced increasing subsistence specialization, perhaps correlating with the appearance of acorn processing technology. Penutian speaking peoples (including the Yokuts) are also posited to have entered the state roughly at the beginning of this period and, perhaps to have brought this technology with them (cf. Moratto 1984). Likewise, it appears the so-called "Shoshonean Wedge" in southern California, the Takic speaking groups that include the Gabrielino/Fernandeño, Tataviam and Kitanemuk, may have moved into the region at that time (Sutton 2009, rather than at about 1500 YBP as first suggested by Kroeber (1925).

Evidence for Middle Horizon occupation of interior south-central California is substantial. For example, in northern Los Angeles County along the upper Santa Clara River, to the south of the San Joaquin Valley, the Agua Dulce village complex indicates occupation extending back to the Intermediate Period, when the population of the village may have been 50 or more people (King et al n.d.). Similarly, inhabitation of the Hathaway Ranch region near Lake Piru, and the Newhall Ranch near Valencia, appears to date to the Intermediate Period (W & S Consultants 1994). To the west, little or no evidence exists for pre-Middle Horizon occupation in the upper Sisquoc and Cuyama River drainages; populations first appear there at roughly 3,500 YBP (Horne 1981). The Carrizo Plain, the valley immediately west of the San Joaquin, experienced a major population expansion during the Middle Horizon (W & S Consultants 2004; Whitley et al. 2007), and recently collected data indicates the Tehachapi Mountains region was first significantly occupied during the Middle Horizon (W & S Consultants 2006). A parallel can be drawn to the inland Ventura County region where a similar pattern has been identified (Whitley and Beaudry 1991), as well as the western Mojave Desert (Sutton 1988a, 1988b), the southern Sierra Nevada (W & S Consultants 1999), and the Coso Range region (Whitley et al. 1988). In all of these areas a major expansion in settlement, the establishment of large site complexes and an increase in the range of environments exploited appear to have occurred sometime roughly around 4,000 years ago. Although most efforts to explain this expansion have focused on local circumstances and events, it is increasingly apparent this was a major southern California-wide occurrence and any explanation must be sought at a larger level of analysis (Whitley 2000). Additionally, evidence from the Carrizo Plain suggests the origins of the tribelet level of political organization developed during this period (W & S Consultants 2004; Whitley et al. 2007). Whether this same demographic process holds for the southern San Joaquin Valley, including the study area, is yet to be determined.

The beginning of the *Late Horizon* is set variously at 1,500 and 800 YBP, with a growing archaeological consensus for the shorter chronology. Increasing evidence suggests the importance of the Middle-Late Horizons transition (AD 800 to 1200) in the understanding of south-central California prehistory. This corresponds to the so-called Medieval Climatic Anomaly, followed by the Little Ice Age, and this general period of climatic instability extended to about A.D. 1860. It included major droughts matched by intermittent "mega-floods," and resulted in demographic disturbances across much of the west (Jones et al. 1999). It is believed to have resulted in major population decline and abandonments across south-central California, involving as much as 90% of the interior populations in some regions, including the Carrizo Plain (Whitley et al. 2007). It is not clear whether site abandonment was accompanied by a true reduction in population or an agglomeration of the same numbers of peoples into fewer but larger villages in more favorable locations. Population along the Santa Barbara coast appears to have spiked at about the same time that it collapsed on the Carrizo Plain (ibid). Along Buena Vista Lake, in Kern County, population appears to have been increasingly concentrated towards the later end of the Medieval Climatic Anomaly (Culleton 2006), and population intensification also appears to have occurred in the well-watered Tehachapi Mountains during this same period (W & S Consultants 2006).

What is then clear is that Middle Period villages and settlements were widely dispersed across the south-central California landscape, including in the Sierras and the Mojave Desert. Many of these sites are found at locations that lack existing or known historical fresh water sources. Late Horizon sites, in contrast, are typically concentrated in areas where fresh water was available during the historical period, if not currently.

One extensively studied site that shows evidence of intensive occupation during the Middle-Late Horizons transition (~1,500 – 500 YBP) is the Redtfeldt Mound (CA-KIN-66/H), located northwest of the current study area, near the north shore of ancient Tulare Lake. There, Siefkin (1999) reported on human burials and a host of artifacts and ecofacts excavated from a modest-sized mound. He found that both Middle Horizon and Middle-Late Horizons transition occupations were more intensive than Late Horizon occupations, which were sporadic and less intensive (Siefkin 1999:110-111).

The Late Horizon can then be understood as a period of recovery from a major demographic collapse. One result is the development of regional archaeological cultures as the precursors to ethnographic Native California; suggesting that ethnographic life-ways recorded by anthropologists extend roughly 800 years into the past.

The position of southern San Joaquin Valley prehistory relative to patterns seen in surrounding areas is still somewhat unknown. The presence of large lake systems in the valley bottoms appears to have mediated some of the desiccation seen elsewhere. But, as the reconstruction of Soda Lake in the nearby Carrizo Plain demonstrates (see Whitley et al. 2007) environmental perturbations had serious impacts on lake systems too. Identifying certain of the prehistoric demographic trends for the southern San Joaquin Valley, and determining how these trends (if present) correlate with those seen elsewhere, is a current important research objective.

2.4 HISTORICAL BACKGROUND

Spanish explorers first visited the San Joaquin Valley in 1772, but its lengthy distance from the missions and presidios along the Pacific Coast delayed permanent settlement for many years, including during the Mexican period of control over the Californian region. In the 1840s, Mexican rancho owners along the Pacific Coast allowed their cattle to wander and graze in the San Joaquin Valley (JRP Historical Consulting 2009). The Mexican government granted the first ranchos in the southern part of the San Joaquin Valley in the early 1840s, but these did not result in permanent settlement. It was not until the annexation of California in 1848 that the exploitation of the southern San Joaquin Valley began (Pacific Legacy 2006).

The discovery of gold in northern California in 1848 resulted in a dramatic increase of population, consisting in good part of fortune seekers and gold miners, who began to scour other parts of the state. After 1851, when gold was discovered in the Sierra Nevada Mountains in eastern Kern County, the population of the area grew rapidly. Some new immigrants began ranching in the San Joaquin Valley to supply the miners and mining towns. Ranchers grazed cattle and sheep, and farmers dry-farmed or used limited irrigation to grow grain crops, leading to the creation of small agricultural communities throughout the valley (JRP Historical Consulting 2009).

After the American annexation of California, the southern San Joaquin Valley became significant as a center of food production for this new influx of people in California. The expansive unfenced and principally public foothill spaces were well suited for grazing both sheep and cattle (Boyd 1997). As the Sierra Nevada gold rush presented extensive financial opportunities, ranchers introduced new breeds of livestock, consisting of cattle, sheep and pig (Boyd 1997).

With the increase of ranching in the southern San Joaquin came the dramatic change in the landscape, as non-native grasses more beneficial for grazing and pasture replaced native flora (Preston 1981). After the passing of the Arkansas Act in 1850, efforts were made to reclaim small tracts of land in order to create more usable spaces for ranching. Eventually, as farming supplanted ranching as a more profitable enterprise, large tracts of land began to be reclaimed for agricultural use, aided in part by the extension of the railroad in the 1870s (Pacific Legacy 2006).

Following the passage of state wide ‘No-Fence’ laws in 1874, ranching practices began to decline, while farming expanded in the San Joaquin Valley in both large land holdings and smaller, subdivided properties. As the farming population grew, so did the demand for irrigation. Settlers began reclamation of swampland in 1866, and built small dams across the Kern River to divert water into the fields. By 1880, 86 different groups were taking water from the Kern River. Ten years later, 15 major canals provided water to thousands of acres in Kern County.

During the period of reclaiming unproductive land in the southern San Joaquin Valley, grants were given to individuals who had both the resources and the finances to undertake the operation alone. One small agricultural settlement, founded by Colonel Thomas Baker in 1861 after procuring one such grant, took advantage of reclaimed swampland along the Kern River. This settlement became the City of Bakersfield in 1869, and quickly became the center of activity in the southern San Joaquin Valley, and in the newly formed Kern County. Located on the main stage road through the San Joaquin Valley, the town became a primary market and transportation hub for stock and

crops, as well as a popular stopping point for travelers on the Los Angeles and Stockton Road. The Southern Pacific Railroad reached the Bakersfield area in 1873, connecting it with important market towns elsewhere in the state, dramatically impacting both agriculture and oil production (Pacific Legacy 2006).

Three competing partnerships developed during this period which had a great impact on control of water, land reclamation and ultimately agricultural development in the San Joaquin Valley: Livermore and Chester, Haggin and Carr, and Miller and Lux, perhaps the most famous of the enterprises. Livermore and Chester were responsible, among other things, for developing the large Hollister plow (three feet wide by two feet deep), pulled by a 40 mule team, which was used for ditch digging. Haggin and Carr were largely responsible for reclaiming the beds of the Buena Vista and Kern lakes, and for creating the Calloway Canal, which drained through the Rosedale area in Bakersfield to Goose Lake (Morgan 1914). Miller and Lux ultimately became one of the biggest private property holders in the country, controlling the rights to over 22,000 square miles. Miller and Lux's impact extended beyond Kern County, however. They recognized early-on that control of water would have important economic implications, and they played a major role in the water development of the state. They controlled, for example, over 100 miles of the San Joaquin River with the San Joaquin and Kings River Canal and Irrigation System. They were also embroiled for many years in litigation against Haggin and Carr over control of the water rights to the Kern River. Descendants of Henry Miller continue to play a major role in California water rights, with his great grandson, George Nickel, Jr., the first to develop the concept of water banking, thus creating a system to buy and sell water (http://exiledonline.com/california-class-war-history-meet-the-oligarch-family-thats-been-scamming-taxpayers-for-150-years-and-counting/).

One early effort at irrigation in the immediate project area involved the development of the Tipton Irrigation District (TID), organized in 1871 on the south side of the Tule River. This covered approximately 17,000-ac. In 1881 the district began the construction of the Tipton Ditch, also known as the Mitchell Ditch. This extended for approximately 7-mi and was 20-ft wide at its head. The Tipton Ditch, which still exists, was intended to provide water from February to June, when the Tule River was still carrying water (Grunsky 1898), because the TID water rights were restricted to flood flow diversion. For a variety of reasons, including drought and the inability of farmers to pay back loans on infrastructure, the TID failed and its canals were abandoned. Local farmers transitioned to the use of water wells during this period (ibid.). Due to rapidly decreasing water table, the Lower Tule River Irrigation District (LTRID) was formed in 1950, in order to obtain Central Valley Project (CVP) water from the San Joaquin river via the Friant Dam and Friant-Kern Canal (LTRID 2008).

The San Joaquin Valley was dominated by agricultural pursuits until the oil boom of the early 1900s, which saw a shift in the region, as some reclaimed lands previously used for farming were leased to oil companies. Nonetheless, the shift of the San Joaquin Valley towards oil production did not halt the continued growth of agriculture (Pacific Legacy 2006). The Great Depression of the 1930s brought with it the arrival of great number of migrants from the drought-affected Dust Bowl region, looking for agricultural labor. These migrants established temporary camps in the valley, staying on long past the end of the drought and the Great Depression, eventually settling in towns such as Bakersfield where their descendants live today (Boyd 1997).

The town of Porterville, which is located east of the study area, was founded in 1854. It initially served as a stop for the Butterfield Overland Mail stage route which ran from Los Angeles to Stockton. Originally called the Tule River Station, it became known as Porterville in 1864, a name based on the middle name of Royal Porter Putnam who owned the area at the stage stop. It first saw development in the late 19th century with the extension of the Southern Pacific Railway branch line from Fresno in 1888. In 1902 the town was incorporated, the Chamber of Commerce was formed in 1907 and a Charter was adopted from a City Manager-Council form of government in 1926. A USGS Porterville (1929, 1:31,680) topographic quadrangle indicates the town had developed to over half of its modern day size (excluding East Porterville) shortly after the adoption of the Charter. The town has continued to grow due to industry and agriculture in the surrounding area.

The community of Woodville reflects the general development of agriculture in the region in the last quarter of the nineteenth century, especially the appearance of wheat farming in the 1880s. The origin of the name "Woodville" likely derives from the abundance of oak trees present in this region of the Tule River at that time. Prior to the construction of the Southern Pacific Railroad though the area, Woodville served as a "farming hamlet" that supported the surrounding population (Tulare County Resource Management Agency, 2019).

The 1892 "Thompson Map of Tulare County" (p. 113) shows that a schoolhouse was present at Woodville, although no development is shown surrounding it. V.A. Stewart is noted as the owner of the study area and, with the exception of a small orchard, it was otherwise undeveloped. Based on historical USGS topographical quadrangles, a church and a few residences/structures were present in Woodville by 1928. The community had been subdivided by 1916, a few roads had been constructed, and less than 30 residences/structures were present. The original Woodville School, to the north of the study area, had been constructed by 1928; however, the school had been moved to its current location by the 1950s. No historical development is shown in the study area on any of these maps.

In 2010, Woodville included 1,740 residents, 88 % of which were Hispanic. Today the community accommodates 224 housing units, a local market, two churches, and a neighborhood park. Today the community can be considered a suburb of Porterville, with an economic emphasis oriented towards local agriculture.

2.5 RESEARCH DESIGN

2.5.1 Pre-Contact Archaeology

Previous research and the nature of the pre-contact archaeological record suggest two significant NRHP themes, both of which fall under the general Pre-Contact Archaeology area of significance. These are the Expansion of Pre-Contact Populations and Their Adaptation to New Environments; and Adaptation to Changing Environmental Conditions.

The Expansion of Pre-Contact Populations and Their Adaptation to New Environments theme primarily concerns the Middle Horizon/Holocene Maximum. Its period of significance runs from

about 4,000 to 1,500 YBP. It involves a period during which the prehistoric population appears to have expanded into a variety of new regions, developing new adaptive strategies in the process.

The Adaptation to Changing Environmental Conditions theme is partly related to the Holocene Maximum, but especially to the Medieval Climatic Anomaly. The period of significance for this theme, accordingly, extends from about 4,000 to 800 YBP. This theme involves the apparent collapse of many inland populations, presumably with population movements to better environments such as the coast. It is not yet known whether the southern San Joaquin Valley, with its system of lakes, sloughs and swamps, experienced population decline or, more likely, population increase due to the relatively favorable conditions of this region during this period of environmental stress.

The range of site types that are present in this region include:

- Villages, primarily located on or near permanent water sources, occupied by large groups during the winter aggregation season;
- Seasonal camps, again typically located at water sources, occupied during other parts of the year tied to locally and seasonally available food sources;
- Special activity areas, especially plant processing locations containing bedrock mortars (BRMs), commonly (though not exclusively) near existing oak woodlands, and invariably at bedrock outcrops or exposed boulders;
- Stone quarries and tool workshops, occurring in two general contexts: at or below naturally occurring chert exposures on the eastern front of the Temblor Range; and at quartzite cobble exposures, often on hills or ridges;
- Ritual sites, most commonly pictographs (rock art) found at rockshelters or large exposed boulders, and cemeteries, both commonly associated with villages; and
- A variety of small lithic scatters (low density surface scatters of stone tools).

The first requisites in any research design are the definition of site age/chronology and site function. The ability to determine either of these basic kinds of information may vary between survey and test excavation projects, and due to the nature of the sites themselves. BRM sites without associated artifacts, for example, may not be datable beyond the assumption that they post-date the Early Horizon and are thus less than roughly 4,000 years old.

A second fundamental issue involves the place of site in the settlement system, especially with respect to water sources. Because the locations of the water sources have sometimes changed over time, villages and camps are not exclusively associated with existing (or known historical) water sources (W&S Consultants 2006). The size and locations of the region's lakes, sloughs and delta channels, to cite the most obvious example, changed significantly during the last 12,000 years due to major paleoclimatic shifts. This altered the area's hydrology and thus prehistoric settlement patterns. The western shoreline of Tulare Lake was relatively stable, because it abutted the Kettleman Hills. But the northern, southern and eastern shorelines comprised the near-flat valley floor. Relatively minor fluctuations up or down in the lake level resulted in very significant changes in the areal expression of the lake on these three sides, and therefore the locations of villages and camps. Although perhaps not as systematic, similar changes occurred with respect to stream channels and sloughs, and potential site locations associated with them. This circumstance

has implications for predicting site locations and archaeological sensitivity. Site sensitivity is then hardest to predict in the open valley floor, where changes in stream courses and lake levels occurred on numerous occasions.

Nonetheless, the position of southern San Joaquin Valley prehistory relative to the changing settlement and demographic patterns seen in surrounding areas is still somewhat unknown (cf. Siefkin 1999), including to the two NRHP themes identified above. The presence of large lake systems in the valley bottoms can be expected to have mediated some of the effects of desiccation seen elsewhere. But, as the reconstruction of Soda Lake in the nearby Carrizo Plain demonstrates (see Whitley et al. 2007), environmental perturbations had serious impacts on lake systems too. Identifying certain of the prehistoric demographic trends for the southern San Joaquin Valley, and determining how these trends (if present) correlate with those seen elsewhere, is another primary regional research objective.

Archaeological sites would primarily be evaluated for NRHP/CRHR eligibility under Criterion D, research potential.

2.5.2 Historical Archaeology: Native American

Less research has been conducted on the regional historical archaeological record, both Native American and Euro-American. For Native American historical sites, the ethnographic and ethnohistoric periods in the southern San Joaquin Valley extended from first Euro-American contact, in AD 1772, to circa 1900, when tribal populations were first consolidated on reservations. The major significant historic NRHP themes during this period of significance involve the related topics of Historic-Aboriginal Archaeology, and Native American Ethnic Heritage. More specifically, these concern the Adaptation of the Indigenous Population to Euro-American Encroachment and Settlement, and their Acculturation to Western Society. These processes included the impact of missionization on the San Joaquin Valley (circa 1800 to about 1845); the introduction of the horse and the development of a San Joaquin Valley "horse culture," including raiding onto the coast and Los Angeles Basin (after about 1810); the use of the region as a refuge for mission neophyte escapees (after 1820); responses to epidemics from introduced diseases (especially in the 1830s); armed resistance to Euro-American encroachment (in the 1840s and early 1850s); the origins of the reservation system and the development of new tribal organizations and ethnic identities; and, ultimately, the adoption of the Euro-American society's economic system and subsistence practices, and acculturation into that society.

Site types that have been identified in the region dating to the ethnographic/ethnohistoric period of significance primarily include villages and habitations, some of which contain cemeteries and rock art (including pictographs and cupules). Dispersed farmsteads, dating specifically from the reservation period or post-1853, would also be expected. The different social processes associated with this historical theme may be manifest in the material cultural record in terms of changing settlement patterns and village organization (from traditional nucleated villages to single family dispersed farmsteads); the breakdown of traditional trading networks with their replacement by new economic relationships; changing subsistence practices, especially the introduction of agriculture initially via escaped mission neophytes; the use of Euro-American artifacts and materials rather than traditional tools and materials; and, possibly, changing mortuary practices.

Inasmuch as culture change is a primary intellectual interest in archaeology, ethnographic villages and habitations may be NRHP/CRHR eligible under Criterion D, research potential. Rock art sites, especially pictographs, may be eligible under Criterion C as examples of artistic mastery. They may also be eligible under Criterion A, association with events contributing to broad patterns of history. Ethnographic sites, further, may be NRHP eligible as Traditional Cultural Properties due to potential continued connections to tribal descendants, and their resulting importance in traditional practices and beliefs, including their significance for historical memory, tribal- and self-identity formation, and tribal education.

For Criteria A, C and D, eligibility requires site integrity (including the ability to convey historical association for Criterion A). These may include intact archaeological deposits for Criterion D, as well as setting and feel for Criteria C and A. Historical properties may lack physical integrity, as normally understood in heritage management, but still retain their significance to Native American tribes as Traditional Cultural Properties if they retain their tribal associations and uses.

2.5.3 Historical Archaeology: Euro-American

Approaches to historical Euro-American archaeological research relevant to the region have been summarized by Caltrans (1999, 2000, 2007, 2008). These concern the general topics of historical landscapes, agriculture and farming, irrigation (water conveyance systems), and mining. Caltrans has also identified an evaluation matrix aiding determinations of eligibility. The identified research issues include site structure and land-use (lay-out, land use, feature function); economics (self-sufficiency, consumer behavior, wealth indicators); technology and science (innovations, methods); ethnicity and cultural diversity (religion, race); household composition and lifeways (gender, children); and labor relations. Principles useful for determining the research potential of an individual site or feature are conceptualized in terms of the mnemonic AIMS-R, as follows:

1. *Association* refers to the ability to link an assemblage of artifacts, ecofacts, and other cultural remains with an individual household, an ethnic or socioeconomic group, or a specific activity or property use.

2. *Integrit*y addresses the physical condition of the deposit, referring to the intact nature of the archaeological remains. In order for a feature to be most useful, it should be in much the same state as when it was deposited. However, even disturbed deposits can yield important information (e.g., a tightly dated deposit with an unequivocal association).

3. *Materials* refers to the number and variety of artifacts present. Large assemblages provide more secure interpretations as there are more datable items to determine when the deposit was made, and the collection will be more representative of the household, or activity. Likewise, the interpretive potential of a deposit is generally increased with the diversity of its contents, although the lack of diversity in certain assemblages also may signal important behavioral or consumer patterns.

4. *Stratigraphy* refers to the vertically or horizontally discrete depositional units that are distinguishable. Remains from an archaeological feature with a complex stratigraphic

sequence representative of several events over time can have the added advantage of providing an independent chronological check on artifact diagnosis and the interpretation of the sequence of environmental or sociocultural events.

5. *Rarity* refers to remains linked to household types or activities that are uncommon. Because they are scarce, they may have importance even in cases where they otherwise fail to meet other thresholds of importance (Caltrans 2007:209).

For agricultural sites, which are may be pertinent to the current study area, Caltrans (2007) has identified six themes to guide research: Site Structure and Land Use Pattern; Economic Strategies; Ethnicity and Cultural Adaptation; Agricultural Technology and Science; Household Composition and Lifeways; and Labor History. Expected site types would include farm and ranch homesteads and facilities, line camps, and refuse dumps. In general terms, historical Euro-American archaeological sites would be evaluated for NRHP eligibility under Criterion D, research potential. However, they also potentially could be eligible under Criteria A and B for their associative values with major historical trends or individuals. Historical landscapes might also be considered.

Historical structures, such as transmission corridors, are typically evaluated for NRHP/CRHR eligibility under Criteria A and/or B, for their associative values with major historical trends or individuals, and C for potential design or engineering importance.

Water conveyance systems comprise a particular sub-set of historical structures that warrant discussion in light of the known presence of such a resource within the Project APE.

2.5.4 Significant Themes

Water conveyance systems within the Project APE can be evaluated in terms of three NRHP themes, as follows.

Theme 1: Development of Irrigated Agriculture in the San Joaquin Valley, 1852-1968

As identified by Caltrans in the *Water Conveyance Systems in California Historic Context Development and Evaluation Procedures,* the "Development of Irrigated Agriculture" is a historically significant theme or event in the history of California and the Central Valley region. In the years following California's statehood and the gold rush, increasing population created an growing market for agricultural products. The total irrigated acreage in the state grew from 60,000 acres in 1860 to nearly 400,000 acres by 1880, an increase of more than 650 percent, and the San Joaquin Valley contained the highest percentage of that land (approximately 47 percent) (Caltrans 2000). Private water companies, land colonies, mutual water companies, and irrigation districts were established in the mid- to late nineteenth century to build irrigation systems to further develop the state's agriculture industry. Irrigation districts became the most influential of these organizations, especially after state legislation—the Wright Act of 1887—causing irrigation districts to grow in number, power, as well as the actual amount of irrigated land throughout the state. Forty-nine irrigation districts were organized between 1887 and 1896, most of them located between Stockton and Bakersfield. However, by the late 1920s, only seven of the original districts were still in existence, among them the Modesto, Turlock, and Tulare irrigation districts (Caltrans

2000). Under the impetus of increased demand during World War I, agricultural production reached a new peak in 1920. Companies like Pacific Gas & Electric and San Joaquin Valley Light and Power helped finance large irrigation reservoirs to feed district canals in return for the power generated. By 1930, there were 94 active districts in California, and the land watered by these agencies mushroomed to 1.6 million acres (Caltrans 2000). Irrigation districts provided more than 90 percent of the surface water used for irrigation in the San Joaquin Valley before the Central Valley Project came on line in the 1940s (Caltrans 2000). Most were located in the San Joaquin Valley, with the most successful in Modesto, Turlock, Merced, and Fresno.

The period of significance for this theme begins with the earliest developments of irrigated agriculture in the San Joaquin Valley, with the construction of the earliest earthen ditches in Visalia in 1852. Irrigated agriculture continues to be an important industry and influence in the Valley. The period of significance ends in 1968 following recommended guidance for closing a period of significance 50 years ago when activities continued to have importance, but no more specific date can be defined to end the historic period, and there is no justification for exceptional significance to extend the period of significance to an end date within the last 50 years (National Register of Historic Places 1997).

Associated Property Types:

Water Conveyance Systems

Following the framework established by Caltrans in *Water Conveyance Systems in California Historic Context Development and Evaluation Procedures*, the water conveyance system is the property type that has the potential to reflect this theme and period. Components and features of water conveyance systems include diversion structures, conduits, flow control devices, cleansing devices, and associated resources and settings. Water Conveyance Systems that are associated with Development of Irrigated Agriculture in the San Joaquin Valley, 1852-1968 will be eligible under NRHP Criterion A/CRHR Criterion 1 for their association with this significant theme if:

- the association with the theme is important--simply because a water conveyance existed during the period of significant is not enough for that system to be eligible;
- the resource retains high overall integrity. The property should retain most of the seven aspects of integrity: location, design, setting, materials, workmanship, feeling, and association.
- Due to the nature of this type of resource, repairs and modifications are acceptable but not if those modifications substantially modified the resource.

Water Conveyance Systems that are associated with Development of Irrigated Agriculture in the San Joaquin Valley, 1852-1968 will be eligible under NRHP Criterion B/CRHR Criterion 2 for their association with this significant theme if they are:

- associated with an important person's productive life ***and*** they are the property that is most closely associated with that person;
- the resource retains high overall. The property should retain most of the seven aspects of integrity: location, design, setting, materials, workmanship, feeling, and association.

- Due to the nature of this type of resource, repairs and modifications are acceptable but not if those modifications substantially modified the resource.

Water conveyance systems will rarely be found eligible under Criterion B. In California notable names for which there might be associations with water planning, construction, or engineering include: Anthony Chabot, George Chaffey, Frederick Eaton, William Mulholland, George Maxwell, Robert Marshall, Elwood Mead and C. E. Grunsky (Caltrans 2000).

Theme 2: Technological Innovation in Irrigated Agriculture in California, 1852-1964

Caltrans clearly defines the historic context for this theme in the "Legacy of Irrigation Canals" section of the context, while ASM has defined a period of significance based on the Caltrans context (Caltrans 2000). The following is a direct excerpt from the context:

> "The earliest irrigation water conveyances in California were roughly made, earthen ditches to divert water. Techniques used to construct irrigation canals have varied widely during the various periods of California's history, from the relatively short, hand-dug, early masonry and tile ditches, to horse-scraped and hand-dug earthen irrigation ditches, to the large concrete-lined, machine-formed irrigation canals of the middle decades of the twentieth century. Evidence of these changes in scale, methods of construction, and knowledge of engineering are reflected in the remaining physical resources found on the landscape today. Substantial regional variation exists with respect to the adoption and dissemination of the new technologies, such as where and when concrete replaced wood in the engineering works of major irrigation canals. These regional differences can be explained in part by cultural traditions with respect to water management, ownership of water rights, and environmental factors, but economics, politics, and the formation of particular types of irrigation institutions also played a significant role.
>
> "Older canals were often subject to substantial change over time. A common change was to expand the system in order to serve more acreage. Unless pumps are used, irrigation canals rely on gravity to move water, and they can provide service only to land lying below the canal's water level. As irrigated acreage expanded, water companies frequently consolidated smaller ditch systems, moved the point of diversion upstream, and built a high-line canal to service new acreage. In this manner, pioneer canals were often absorbed into larger systems, frequently by irrigation districts, to pull in more potentially irrigable lands. Segments of earlier irrigation systems might remain largely intact within the larger framework of a new irrigation system, or the changes could be such that the old separate irrigation system would become, in essence, a typical component of a new 1920s irrigation district canal.
>
> "Another important factor is that water is notoriously difficult to control; it can be, and frequently is, an engine of destruction. Flood waters, for example, repeatedly overwhelmed the flimsy wooden control structures built on nineteenth and early-twentieth century irrigation systems in the San Joaquin Valley. Canals required periodic maintenance and were also often altered as a result of improvements designed to counteract the normal

> erosion that occurs from water moving through earth-lined canals. Improvements to stabilize canals ranged from realigning segments of the channel, to lining ditches or putting them in pipe, to replacement of checks, drops, culverts, or other regulation structures. These improvements were sometimes carried out system-wide, sometimes on a piecemeal basis. In light of the proclivity for change and the wide diversity of canal materials and modes of construction, adequate documentary research is essential to understand the evolution of an important irrigation canal and to assess its integrity" (Caltrans 2000).

The period of significance for this theme begins with the earliest developments of irrigated agriculture in the San Joaquin Valley, with the construction of the earliest earthen ditches in Visalia in 1852. Technological innovations in agricultural irrigation are ongoing, but the period of significance ends in 1968 following recommended guidance for closing a period of significance 50 years ago when activities continued to have importance, but no more specific date can be defined to end the historic period, and there is no justification for exceptional significance to extend the period of significance to an end date within the last 50 years (National Register of Historic Places 1997).

Associated Property Types:

Water Conveyance Systems

Following the framework established by Caltrans in *Water Conveyance Systems in California Historic Context Development and Evaluation Procedures*, the water conveyance system is the property type that has the potential to reflect this theme and period. Components and features of water conveyance systems include diversion structures, conduits, flow control devices, cleansing devices, and associated resources and settings. Water Conveyance Systems that are associated with Technological Innovation in Irrigated Agriculture in California, 1852-1968 will be eligible under NRHP Criterion C/CRHR Criterion 3 for their association with this significant theme if they are/have:

- unique values;
- the best or good example of the property type as one that possess distinctive characteristics of the type and through those characteristics clearly illustrates at least one of the following;
    - the pattern of features common to a particular class of resources
    - the individuality or variation of features that occurs within the class;
    - the evolution of that class; or
    - the transition between classes of resources
- the earliest, best preserved, largest, or sole surviving example of particular types of water conveyance systems;
- a design innovation of evolutionary trends in engineering
- designed by a figure of acknowledged greatness in the field or by someone unknown whose workmanship is distinguishable from others by its style and quality ***and*** be a good example of that designer's work;
- the resource retains high overall integrity because of the high number of comparable examples. The property should retain most of the seven aspects of integrity: location, design, setting, materials, workmanship, feeling, and association.

A large water conveyance system with multiple components will often be evaluated as a district rather than as a single property. An eligible historic district must possess a significant concentration or linkage of resources that are united historically or aesthetically by plan or physical development. It should be a significant and distinguishable entity, although its components need not possess individual distinction (Caltrans 2000).

Theme 3: Construction of the CVP Engineering and Associated Features, 1937 to 1956

As identified by BOR in the National Register of Historic Places Multiple Property Documentation Form *Central Valley Project: Planning and Construction of the First Four Divisions, 1935-1956,* the "Construction of the CVP Engineering and Associated Features, 1937 to 1956" is a historically significant theme or event in the history of California. Properties associated with this theme are most likely to be eligible under NRHP Criteria A and C/CRHR 1 and 3.

As the most ambitious Federal water storage, transfer, and delivery system conceived and implemented in American history, California's enormous CVP forever altered the physiographic and socioeconomic landscape of America's third largest and most populous state. More than providing water for irrigation and municipal purposes, the CVP also addressed problems of flood control, river navigability, and saltwater intrusion into freshwater areas. With many engineering features built and operated by the BOR, the CVP also provides water for hydroelectric generation, fish and wildlife protection, waterfowl conservation, and recreational needs. Few, if any, American reclamation projects can point to such an extensive array of purposes and services (Bailey 2010).

Property types associated with the CVP consist of structures built for storage, regulation, delivery, and power development of water. In addition, there are property types associated with the ongoing operation and maintenance of the CVP and with the protection of fish affected by construction of the CVP facilities. These properties include dams, power-plants, water conveyance structures, canals and appurtenant features, laterals, sub-laterals, drains, pumping plants, buildings, dikes, and fish facilities. A core component of the CVP are the conveyance systems used to carry water from the storage and diversion facilities to the farmlands, or to pumping plants for further geographical redistribution. The backbone of the conveyance system is comprised of the 500-mi of main canals. These include the Contra Costa Canal, Delta Cross Channel, Delta-Mendota Canal, Friant-Kern Canal, and Madera Canal. All main canals but the Delta Cross Channel and the first section of the Contra Costa Canal (near Rock Slough) are concrete lined. All of the main canals are typically defined to include operating roads on one or both sides of the canal prism. For the CVP, the water conveyance scope is huge: in addition to the over 500-mi of main canals, it contains thousands of miles of laterals (and sub- and sub-sub-laterals) that deliver water from the main canals to irrigation ditches on farms. Also falling within this property type are about 84-mi of drains that carry excess water away from farm fields (Bailey 2010).

The period of significance for laterals, sub-laterals, and drains begins in 1937 with the initial construction of the first CVP canal, the Contra Costa Canal, and ends in 1956 with the end of construction for the facilities associated with this historic context.

Associated Property Types:

Laterals, Sub-laterals, and Drains

Following the framework established by BOR, laterals, sub-laterals, and drains are property types that have the potential to reflect this theme and period. Laterals and sub-laterals are secondary water conveyance structures that carry water from the main canals to specific agricultural fields. They are smaller in dimension and capacity than main canals. Likewise, sub-laterals are typically smaller in dimension and capacity than laterals and provide water service to smaller area. CVP laterals and sub-laterals within the period of significance are typically earthen canals, although some are concrete lined. Laterals and sublaterals were most commonly built by individual land owners or irrigation districts, although some of them may have been constructed by Reclamation. Operation and maintenance of laterals and sub-laterals constructed by Reclamation was turned over to other entities, such as water or irrigation districts. A massive network of laterals and sub-laterals deliver water to CVP farmers for irrigation. Secondary to the canals in distributing water are the thousands of laterals on the CVP. Because of the secondary function to the CVP main canals, rarely would a lateral be individually eligible s part of the CVP. Sub-laterals are even less likely than laterals to be individually eligible as part of the CVP due to their smaller size and the smaller area they serve. Sub-laterals can be contributing features of an eligible district of a historic farm or agricultural landscape where the impact the sub-lateral in combination with the other resources is substantial. The evaluation of the significance of drains is similar to that of laterals, rarely will drains be individually eligible as part of the CVP. It is more likely that drains will contribute to a district in association with a main canal or as part of an agricultural landscape.

Laterals, sub-laterals, and drains that are associated with the Construction of the CVP Engineering and Associated Features, 1937 to 1956 will be eligible under the following NRHP (or comparable CRHR) criteria for their association with this significant theme if they are/have:

- Criterion A: They have had a significant impact on the settlement, agricultural economy, or development patterns of the project area; they have been defining elements in the evolution of the cultural landscape; they are directly associated with important events.
- Criterion B: not applicable.
- Criterion C: They are among the best or a rare surviving example of a distinctive type of lateral, sub-lateral, or drain; they represent the evolving technology in the design of laterals, sub-laterals, and drains; they represent a unique design solution developed in response to a difficult engineering challenge; they were identified during the construction period as an individually significant feature; or
- Criterion D: They have the ability to yield information important to understanding the history of the CVP.

3. ARCHIVAL RECORDS SEARCH & TRIBAL COORDINATION

3.1 ARCHIVAL RECORDS SEARCH

In order to determine whether the study area had been previously surveyed for cultural resources, and/or whether any such resources were known to exist on any of them, an archival records search was conducted by the staff of the Southern San Joaquin Valley Information Center (IC) on 15 October 2018. The records search was completed to determine: (i) if prehistoric or historical archaeological sites had previously been recorded within the study areas; (ii) if the project area had been systematically surveyed by archaeologists prior to the initiation of this field study; and/or (iii) whether the region of the field project was known to contain archaeological sites and to thereby be archaeologically sensitive. Records examined included archaeological site files and maps, the NRHP, Historic Property Data File, California Inventory of Historic Resources, and the California Points of Historic Interest.

According to the IC records search (Confidential Appendix A), no previous studies have been conducted within the study area and no archaeological resources of any kind are known to exist within it. Two previous studies had been conducted within 0.5-miles of the study area (Table 1). Although no cultural resources were recorded as a result, however, the SSJVIC has provided a resource name known to exist within 0.5-miles of the study area: TUL-PRO-004, "Old Vincent Ranch". No description of TUL-PRO-004 exists, however, artifacts (unknown age) and a child's tooth are known to have been collected by Frank F. Latta in 1928. A 1992 records search of the Office of Historic Preservation archives did not yield sites within the Woodville USGS 7.5' Quadrangle. The exact provenance of the site and collected remains is unknown.

Table 1. Survey Reports Within 0.5 Miles of the Study Area

Report No.	Year	Author (s)/Affiliation	Title
TU-00508	1979	ME, Thronton/ CSU Fresno	Archaeological Investigation for Woodville Public Utility District Wastewater Treatment Plant
TU-01596	2007	H Switalski/ AMEC Earth and Environmental Inc.	Archaeological Survey for the Southern California Edison Company Replacement of 10 Deteriorated Power Poles on the Budd 12kV, Campbell 12kV, Caratan 12kV, Elster 12kV, Granite 12kV, Monroe 12kV, and Windt 12kV Distribution Circuits Kings and Tulare Counties, California. (DWO 6051-4800, AI 54890, S-4894, T-4804, and 7-4810)

In addition to the records search, historic maps were examined to determine whether historical development had occurred within the APE. These included the 1892 "Thompson Map of Tulare County," and the 1928, 1950 and 1951 Woodville USGS topographical quadrangles. According to these maps, Woodville, and the original "Woodville School" located north of the study area, first appears on Thompson's 1892 map. No additional structures or development within the APE are shown on any of these information sources. An east-west trending irrigation ditch, which follows the proposed corridor for approximately 2550-ft, first appears on historic USGS quadrangles and aerials by 1970, indicating that its construction is contemporary/modern in age. All structures associated with this irrigation ditch (i.e. sliding gates, culvert) appear recent. Multiple reservoirs and small structures appear near the study area by 1928 and 1950; however, these no longer exist.

3.2 TRIBAL COORDINATION

The Native American Heritage Commission (NAHC) was contacted for a review of their Sacred Lands file and to receive their list of affiliated tribes and individuals list. A response was received from the NAHC on 16 September 2019 (Confidential Appendix A). According to their files, no sacred places or cultural sites were known within or near to the Project area.

ASM Affiliates, Inc. sent certified letters on 26 September 2019 to the five tribes on the NAHC-provided contact list, soliciting information about the study area or concern about the Project. Email outreach follow-ups were made to each tribe a month after the letters were sent (see Confidential Appendix A). No information about tribal cultural resources or requests for formal consultation were received from any tribes or individuals.

4. METHODS AND RESULTS

4.1 FIELD METHODS

An intensive Class III inventor/Phase I survey of the Woodville PUD Well Replacement Project APE was conducted by Robert Azpitarte, B.A., ASM Associate Archaeologist, on 24 October 2019. The field methods employed included intensive pedestrian examination of the ground surface for evidence of archaeological sites in the form of artifacts, surface features (such as bedrock mortars, historical mining equipment), and archaeological indicators (e.g., organically enriched midden soil, burnt animal bone); the identification and location of any discovered sites, should they be present; tabulation and recording of surface diagnostic artifacts; site sketch mapping; preliminary evaluation of site integrity; and site recording, following the California Office of Historic Preservation Instructions for Recording Historic Resources and the BLM 8100 Manual, using DPR 523 forms. Parallel survey transects spaced at 15-m apart were employed for the inventory. Both sides of roads were surveyed where these had been paved. In areas with development (buildings, lawns) abutting the roads, verges and other exposed ground-surface areas were carefully examined.

The proposed water well study area is currently bordered by Woodville Elementary School (Figure 2) and residential development (Figure 3) along the short, north-south trending sections of the pipeline corridor. Undeveloped land and agricultural fields surround the majority of the proposed corridor. An east-west trending portion of the corridor between Road 164 and Woodville Road follows an irrigation ditch right-of-way (Figure 4).

Vegetation within the undeveloped portion of the study area consisted of patches of saltbush and Russian thistle interspersed within low stands of introduced grasses. Ground surface visibility was excellent to fair. The east-west trending portion of the proposed pipe corridor provided the best survey coverage. Overall, conditions in the field were adequate for an intensive Class III inventory/Phase I survey.

Figure 2. Overview of the proposed pipeline corridor along Woodville Road, looking south. Note - Woodville View Elementary School on right.

Figure 3. Overview of the proposed pipeline corridor along Road 164, looking north.

Figure 4. Overview of proposed pipe corridor along dirt road right-of-way between Road 164 and Woodville Road, looking east.

4.2 SURVEY RESULTS

No cultural resources of any kind were identified within the Project APE. The proposed Woodville PUD Well Replacement Project does not have the potential to result in adverse effects/impacts to historic properties or historical resources.

5. SUMMARY AND RECOMMENDATIONS

An intensive Class III cultural resources inventory/Phase I survey was conducted for the Woodville PUD Well Replacement Project, located in Tulare County, California. The proposed Project consists of the construction and installation of a new water well and associated pipelines along the southern edge of Woodville. The APE for the Project was defined as the area of potential ground surface disturbance. The horizontal APE is approximately 9-ac in size, while the vertical APE is 25-ft.

A records search was conducted at the Southern San Joaquin Valley Archaeological Information Center, California State University, Bakersfield. These investigations determined that the Project APE had not been previously surveyed and that no cultural resources of any kind were known to exist within it.

A search of the NAHC *Sacred Lands File* was also completed. Using the NAHC contact list, five tribes were contacted to determine if culturally sensitive resources were known to exist within or around the proposed project area, or if they had specific concerns about the project. According to the NAHC and the contacted tribes, no other archaeological resources, sacred sites, traditional cultural places or tribal cultural resources were known within or adjacent to the project.

Based on the results of the records search, the study area was considered to have low archaeological sensitivity. The Phase I survey fieldwork was conducted on 24 October 2019, with parallel transects spaced at 15-meter intervals walked along the entire approximately 9-ac Project APE. No historical or archaeological resources of any kind are present within the study area.

5.1 RECOMMENDATIONS

The proposed Woodville PUD Well Replacement Project does not have the potential to result in adverse effects/impacts to historic properties or historical resources. A Determination of No Effect is therefore recommended for this Project. In the unlikely event that archaeological resources are encountered during the construction or use of this Project, however, it is recommended that an archaeologist be contacted to assess the discovery.

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CONFIDENTIAL APPENDIX A:

Records Search and Native American Heritage Commission Sacred Lands File Request