

# Appendix D

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Phase I Cultural Resources Survey

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**PHASE I SURVEY,  
DILLARD GROUNDWATER RECHARGE AND  
SOLAR ARRAY PROJECT,  
KERN COUNTY, CALIFORNIA**

*Prepared for:*

Ms. Rachelle Echeverria

Rosedale-Rio Bravo Water Storage District  
849 Allen Road  
Bakersfield, CA 93314

*Prepared by:*

Peter A. Carey, MA, RPA

Ashlee N. Younie, MA, RPA

*and*

Robert Azpitarte, BA

ASM Affiliates  
4800 Stockdale Highway, Suite 405  
Bakersfield, California 93309

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## MANAGEMENT SUMMARY

An intensive Phase I survey was conducted for the Rosedale-Rio Bravo Water Storage District (RRBWSD) Dillard Groundwater Recharge and Solar Array Project (Project), Kern County, California. This study was conducted by ASM Affiliates with Peter A. Carey, MA, RPA, serving as principal investigator. Background studies and fieldwork for the survey were completed from August 2024 – October 2025. The study was undertaken to assist with the preparation of an environmental document consistent with the California Environmental Quality Act (CEQA). The proposed project is designed to improve the efficiency of the RRBWSD through better management of surface water supplies in wet years by increasing groundwater recharge capacity. The Project area is located within the RRBWSD service area, east of Bakersfield, Kern County, California. The study area for the cultural resources fieldwork consists of the proposed 50 acre (ac.) recharge basins, solar array and battery energy storage system (BESS), approximately 25 miles (mi.) of overhead power lines with an added 50 foot (ft.) survey buffer, and all staging and laydown areas. The study area for the Project totals approximately 203 ac.

A records search of site files was conducted by the Southern San Joaquin Valley Information Center (SSJVIC), California State University, Bakersfield, in August 2024 and September 2025. According to the SSJVIC, 33 previous archaeological study reports have been conducted within 0.5-mile (mi.) of the study area; of these, 11 cover a portion of the study area. The SSJVIC results identified four previously recorded resources (P-15-002050, P-15-008121, P-15-017760, and P-15-017761) within the study area and an additional nine within 0.5 mi. of the study area.

In addition to the records search, ASM requested a search of the Sacred lands File from the Native American Heritage Commission. No response was received. A response from a separate but nearby project was utilized and outreach letters were sent. The Santa Rosa Rancheria Tachi Yokut Tribe responded deferring to local tribes, and Tejon Indian Tribe responded requesting to be notified if any inadvertent discoveries are made during Project construction.

The Project study area was surveyed by ASM archaeologists in October 2024 and October 2025, with crew walking parallel transects spaced at 15-m intervals. ASM revisited the locations of the four previously recorded resources (P-15-002050, P-15-008121, P-15-017760, and P-15-017761). Resource P-15-002050, the Southern Pacific Railroad, is currently operating as the Santa Fe Railroad within the study area. The project will occur either above or below the railroad and it is therefore considered to be outside of the study area and was therefore not updated. P-15-017760 is a large historic-era oil operation with numerous spread-out features, none of which are located within the study area. This site was also not updated since no features exist within the study area. P-15-017761, the Pioneer Canal, is no longer extant in the study area as the alignment was removed prior to 1984, likely when the Cross Valley Canal was constructed in 1975. ASM recorded several segments of P-15-008121, Goose Lake Slough, within the study area. In addition to the previously recorded resources, one newly identified resource (temporary field designation DILLARD-SITE-1) was recorded within the recharge basin and solar array portion of the study area.

Based on a lack of integrity, DILLARD-SITE-1 is recommended not eligible for inclusion in the California Register of Historical Resources (CRHR) under any criteria. Goose Lake Slough (P-15-008121) has been determined not eligible for inclusion in the National Register of Historic Places (NRHP) and previous segments have also been recommended not eligible for inclusion in both the NRHP and CRHR. ASM agrees with these previous determinations and recommendations for the newly recorded segments.

Based on the results of the records searches and intensive pedestrian survey of the study area, a determination of ***No Significant Impact to Historical Resources*** is recommended for this Project. In the

unlikely event that cultural resources are encountered during the construction or operation of the proposed Project, however, it is recommended that an archaeologist be contacted to evaluate the discovery.

# 1. INTRODUCTION AND REGULATORY CONTEXT

ASM Affiliates was retained by Rosedale-Rio Bravo Water Storage District (RRBWS) to conduct an intensive Phase I survey for its proposed Dillard Groundwater Recharge and Solar Array Project (Project), Kern County, California. The purpose of this investigation was to assist with compliance with the California Environmental Quality Act (CEQA). The investigation was undertaken, specifically, to ensure that no significant adverse effects to historic properties or historical resources would occur as a result of this proposed project.

This current study included:

- A background records search and literature review to determine if any known archaeological sites were present in the proposed project areas and/or whether the project areas had been previously and systematically studied by archaeologists;
- A search of the NAHC *Sacred Lands File* to determine if any traditional cultural places or cultural landscapes have been identified within the project areas;
- 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 project study areas.

This study was conducted by ASM Affiliates, of Bakersfield, California, from October 2024 to October 2025. Peter A. Carey, MA, RPA, served as principal investigator. ASM Associate Archaeologist Robert Azpitarte, BA, RPA, conducted the fieldwork with assistance from ASM Assistant Archaeologists Daniel Ware, BA, and Margarita Lemus, BA.

This manuscript constitutes a report on the Phase I survey. Subsequent chapters provide background to the investigation, including historic context studies; the findings of the archival records search; a summary of the field surveying techniques employed; and the results of the fieldwork. We conclude with management recommendations for the Study Area.

## 1.1 PROJECT LOCATION AND STUDY AREA

The Project is located in Sections 25, 26, 27, 28, 29, 34, Township 29 South, Range 25 East (T29S/R25E); Sections 25, 30, 31, 36, Township 29 South, Range 26 East (T29S/R26E); and Section 1 Township 30 South, Range 26 East (T30S/R26E), Kern County, California (Figures 1a-1c). The fieldwork is being conducted in advance of anticipated groundwater recharge basin and solar development activities, including an electrical transmission line. Elevations within the study area range from 300 ft. above mean sea level (amsl) to 350 ft. amsl.

The study area for the cultural resources fieldwork consists of the proposed 50 acre (ac.) recharge basins, solar array and battery energy storage system (BESS), approximately 25 miles (mi.) of overhead power lines with an added 50 foot (ft.) survey buffer, and all staging and laydown areas. The study area for the Project totals approximately 203 ac. The individual Project components are described in detail below.

## **1.1 PROJECT DESCRIPTION**

The Project would involve the construction and operation of a groundwater recharge basin, consisting of two to three ponds containing elevated solar panel arrays, a battery energy storage system, and approximately 25 miles of power transmission lines. Each of the project components are discussed further in the following sections.

### ***Groundwater Recharge Basin***

The project would involve grading to create two to three groundwater recharge ponds. Earthwork would also be required to use onsite materials to construct the berms. Water for groundwater recharge would be available from Rosedale's existing Conjunctive Use Program, which includes water supplies from high-flow Kern River water, the Central Valley Project, and the State Water Project. Rosedale's existing Central Intake Pipeline would supply water to the groundwater recharge ponds. Interbasin control structures and inflow pipelines would be installed to facilitate water flow into the site. Pipelines would be installed via open-cut trench installation, and other interbasin control structures would be prefabricated off-site and then installed. The maximum depth of excavation would be ten feet, and the average depth of excavation would be six feet.

### ***Solar Array and BESS***

The Project would also include construction of an elevated solar array above the recharge ponds. The intent of the elevated solar arrays is to harness solar energy while also minimizing algae growth and water loss from evaporation in the recharge ponds. The solar array would have a capacity of 7,515 kilowatts (kW) of direct current (DC) power or 5,000 kW of alternating current (AC) power. The solar array would generate approximately 15.1 million kilowatt-hours (kWh) of power each year. Power generated by the solar array would be used to power existing Rosedale pumps. The proposed solar array would be designed and sized based on historic and projected energy use associated with existing Rosedale facilities and would not be intended to function as a commercial power generator or to produce surplus power. However, in the event that Rosedale energy demand is low, surplus energy generated by the solar array would be sold back to Pacific Gas & Electric (PG&E) for use in the local energy grid.

The solar array would connect to a BESS, which would store energy generated by the solar array. The BESS would be located northeast of the groundwater recharge ponds and the solar array with dedicated access from Superior Road. The BESS would consist of four battery container enclosures (each with internal heating, ventilation, and air conditioning [HVAC] systems, internal fire detection and suppression systems, and battery management systems). The BESS would also include 40 rack-mounted string inverters, step-up transformers, and a switchboard, which would be located south of the battery container enclosures. The BESS components would be placed on either a concrete pad, drilled pier, or pile foundations. The battery storage technologies being considered are lithium-ion-phosphate (lithium-ion) or other similar technologies that may become commercially available as the BESS project undergoes final design. The BESS would have a storage capacity of approximately 4,000 kilovolt-amperes or 15,670 kWh.

The BESS enclosures would include internal HVAC and internal fire detection and fire suppression systems in each container. The internal HVAC systems would allow the battery containers to function properly in temperatures ranging from below zero degrees Fahrenheit to approximately 130 degrees Fahrenheit. These containers would also include a battery management system which monitors battery voltage, current, temperature, security, fault diagnosis and management, and external communication with the power conversion system. In the event that ambient temperatures exceed 130 degrees Fahrenheit, a liquid cooling system would automatically switch on and the battery management system would automatically limit charging, isolate certain areas of the system, or shut off. These actions would be in addition to the battery

management system's various operator alarms and warnings. Each inverter would include protection equipment, direct current and alternating current circuit breakers, and a connection cabling system. The inverters would be connected to the battery containers by underground electrical conductors.

The proposed Project would include a switchboard with switchgear located south of the battery container enclosures. The switchgear would manage and control the electrical energy flow within the BESS system. The switchgear would be able to isolate different parts of the BESS for safety during operation and maintenance activities. Additionally, the switchgear would ensure the BESS can connect to, and disconnect from, the energy grid to allow the BESS to provide or absorb power when required and provide energy at peak demand times. The switchgear facilities would include a step-up transformer, which would convert the voltage of electricity between the BESS and its connection to PG&E power lines.

### ***Power Transmission Lines and Interconnection***

The Project would include construction of approximately 25 mi. of overhead power lines. Power line poles would generally be mounted in easements between agricultural properties, or along roadways. Several power line alignments would require crossing the Santa Fe Railroad right-of-way; depending on encroachment requirements established by the Burlington Northern Santa Fe Railway, power line alignments that cross the railroad would either be aboveground, pole-mounted power lines or installed belowground.

A point of interconnection would be constructed to transfer power generated by the solar array to existing PG&E infrastructure. The interconnection would consist of approximately three or four poles with protection devices, metering devices, and reclosers. The interconnection would be located near the intersection of Cherry Avenue and SR 58, approximately 0.4 mi. south of the solar facility and groundwater recharge ponds.

### ***Construction Grading and Contouring***

Construction of the groundwater recharge ponds in the proposed groundwater recharge basin would require the excavation of approximately 75,000 cubic yards (CY) of soil and would require placing and compacting approximately 50,000 CY of soil for infill. No excavated soil would be exported off-site.

### ***Open Cut Trench Pipeline Installation***

A turnout pipeline would be installed via open cut trench. Open cut trench pipeline installation would involve excavation of a trench, installation of the new pipelines, and then backfilling the trench with soil. The maximum depth of excavation is anticipated to be ten feet. No export of concrete materials or soils is anticipated to occur.

### ***Power Lines***

Aboveground power line poles would require excavation to a depth of approximately six feet to partially bury the base of each pole. Locations of aboveground power line poles would be identified through easement agreements and will be located within the designated locations of the powerlines. Belowground power lines that cross the Santa Fe Railroad, if required, would be installed via horizontal boring, which would involve boring a path for the power lines underground below the railroad right-of-way and pulling the power lines through the path. Locations of belowground power lines would be identified through easement agreements and will be located within the designated locations of the powerlines.

### ***Operation and Maintenance***

The proposed groundwater recharge basin would require periodic maintenance, including occasional clearing of debris. Weed and pest control operations would be conducted as necessary, utilizing products approved for aquatic use in order to protect and preserve groundwater quality. Periodic earthwork operations are required to maintain pond bottoms and levees and remove vegetative growth. Equipment could include tractors (110- HP light motor), mini-skid steers, mini-excavators, mowers, and loaders. Maintenance would redistribute soils on-site and would not require off-site soil removal or disposal.

One daily trip to the project site would be required during operation. Operation of the project would result in a minor increase in vehicle trips compared to existing conditions, as Rosedale staff visit nearby facilities and would subsequently visit the project site in the same trip. The proposed project would have the occasional need for battery upgrades or augmentation in the future. Augmentation batteries would be installed on existing foundations to maintain system load capacity as the batteries degrade over time. Methods of battery disposal are described below.

### ***Solar and BESS Decommissioning***

At the end of the useful life of the solar array and BESS (anticipated to be up to approximately 40 years), the solar facilities would be decommissioned. Currently, standard decommissioning practices include dismantling and repurposing, salvaging/recycling, or disposing of the proposed project components in accordance with applicable laws and regulations. However, actual decommissioning for the proposed project would be conducted in accordance with all applicable local, state, and federal requirements in effect at the time of decommissioning, and a final decommissioning plan, based on then-current technology, site conditions, and regulations, would be prepared prior to actual decommissioning.

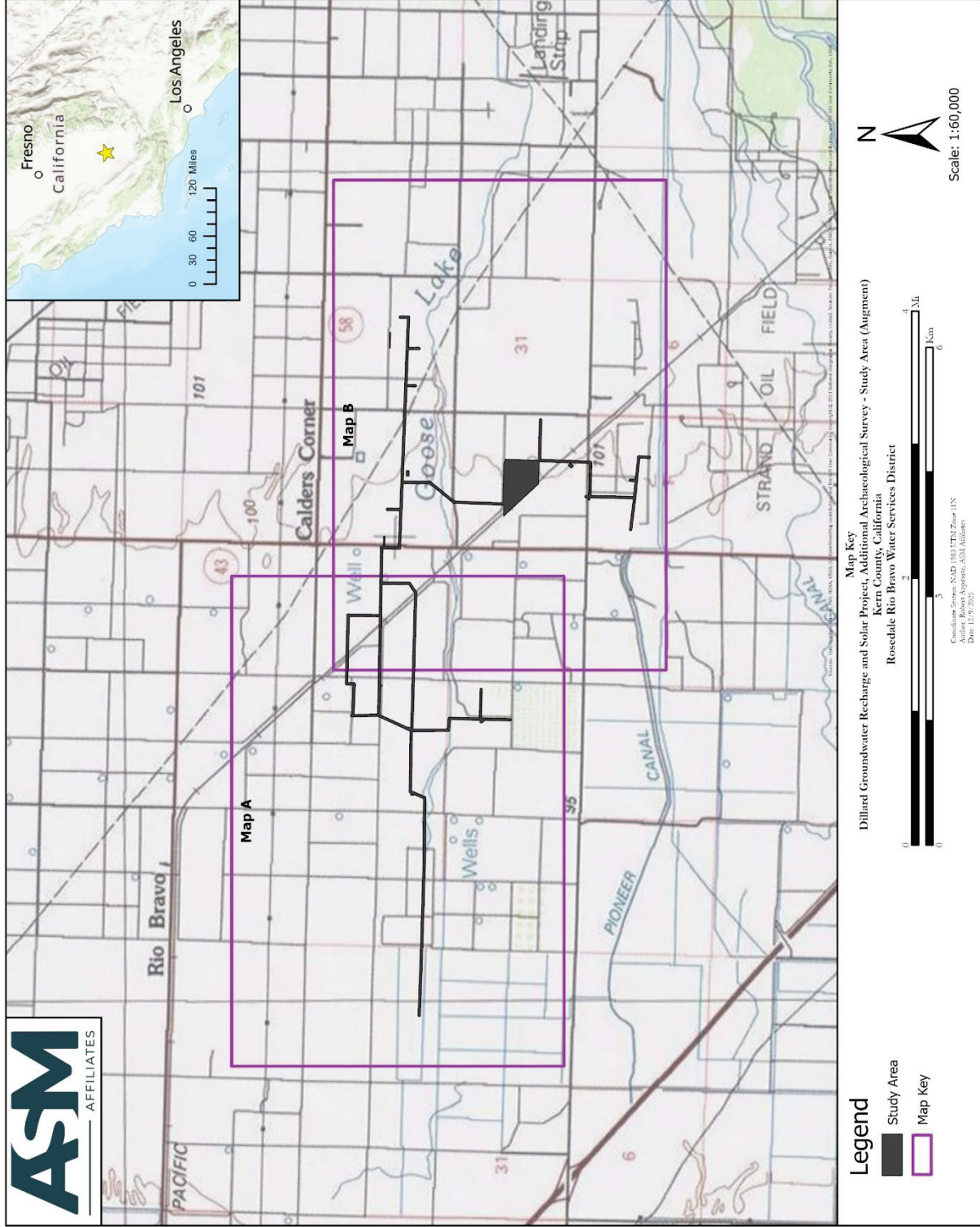


Figure 1a. Location of the Dillard Recharge and Solar Array Project study area, Kern County, California.



Figure 1b. Location of the Dillard Recharge and Solar Array Project study area, Kern County, California.

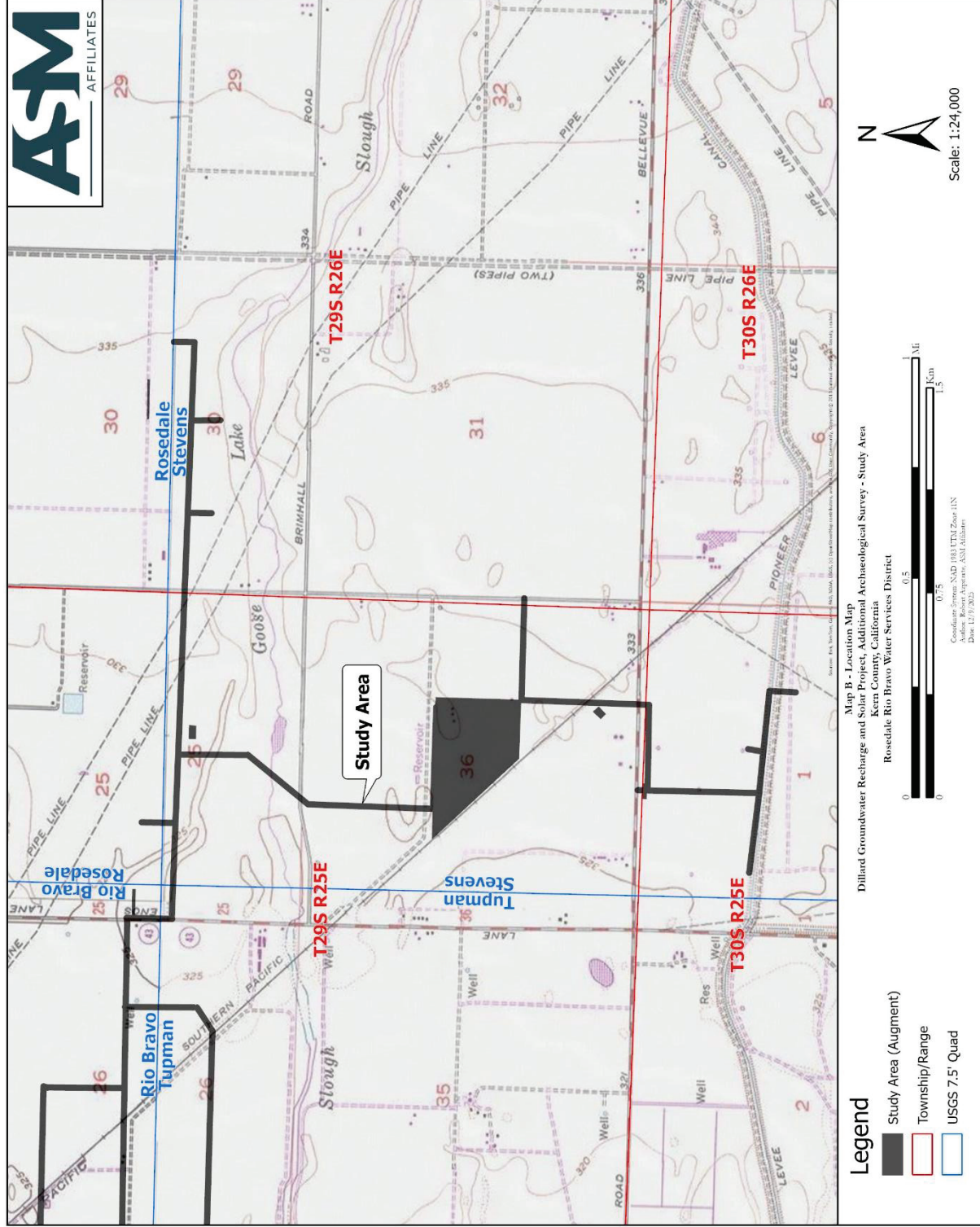


Figure 1c. Location of the Dillard Recharge and Solar Array Project study area, Kern County, California.

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## 1.2 REGULATORY CONTEXT

### 1.2.1 California Environmental Quality Act

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 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:

- (1) Are associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage;
- (2) Are associated with the lives of persons important in our past;
- (3) 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
- (4) 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.

### 1.2.2 California Register of Historical Resources Significance Criteria

The CRHR program encourages public recognition and protection of resources of architectural, historical, archeological, and cultural significance, identifies historical resources for state and local planning purposes, determines eligibility for state historic preservation grant funding, and affords certain protections under CEQA.

Historical resources eligible for listing in the CRHR must meet at least one of the criteria of significance described above and retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance. For the purposes of eligibility for CRHR,

integrity is defined as “the authenticity of an historical resource’s physical identity evidenced by the survival of characteristics that existed during the resource’s period of significance” (California Office of Historic Preservation 2011:2). This general definition is strengthened by the more specific definition offered by the NRHP—the criteria and guidelines on which the CRHR criteria and guidelines are based upon. In 2012, the California Office of Historic Preservation clarified that the intent of the CRHR regulations is to be the same as the NRHP (California Office of Historic Preservation 2011).

## **2. ENVIRONMENTAL AND CULTURAL BACKGROUND**

### **2.1 ENVIRONMENTAL BACKGROUND**

The proposed Project is located on the open flats of the San Joaquin Valley. Currently it may be characterized as a dry open valley bottom, but it is within the historical Kern River Delta, with the current (post-1868) Kern River channel a short distance to the south. Prior to reclamation and channelization, the region would have been a low-lying, water-rich area characterized by sloughs, marshes, and swamps. Occasionally inundated by floodwaters, in most years the region would have been a swamp during the winter rainy season and marsh land during other parts of the year.

Historical and recent land use has changed the vegetation that was once present within and near the project area, which now consists of orchards and agricultural fields. Riparian Woodlands were likely present along Goose Lake Slough, which was channelized with the construction of the Isabella Reservoir and the Cross Valley Canal, and now operates as a controlled groundwater conveyance facility. Although the project area may have included the Valley Grassland community historically and prior to development, depending upon drainage and seasonal storm systems, freshwater marshes are more likely to have been present (see Schoenherr 1992).

Throughout the early twentieth century to present day, the area has become increasingly popular for rural residential development and agricultural uses. Permitted uses of the Project Study Area and its vicinity include, but are not limited to, irrigated cropland, livestock lands, residences, groundwater recharge facilities, and solar facilities, where power generated does not exceed the total on-site power demand. Historic aerial images dating back to 1955 depict a mix of undeveloped and developed agricultural lots in the Project Study Area and the surrounding area (NETROnline 2025).

### **2.2 ETHNOGRAPHIC BACKGROUND**

Penutian-speaking Yokuts tribal groups occupied the southern San Joaquin Valley region and through 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, this information emphasizes the central Yokuts tribes occupying the valley and, especially, the foothills of the Sierra. The northernmost tribes had suffered from the influx of Euro Americans during the Gold Rush and were essentially extirpated by the time ethnographic study began at about the start of the twentieth century. The southernmost tribes, in contrast, were partly removed by the Spanish to the missions and subsequently were absorbed into multi-tribal communities on the Sebastian Indian Reservation (on the Tejon Ranch), and eventually the Tule River Reservation and Santa Rosa Rancheria, situated to the north. The result of these historical circumstances is limited ethnographic detail on southern Valley tribes, especially relative to the information collected from the central foothills tribes where it is quite rich and where native speakers of Yokuts dialects are still found. Still, it is clear that the general details of indigenous lifeways were similar across the broad expanse of Yokuts territory, particularly in terms of the patterns of life for valley versus foothill tribes, where environment influenced subsistence and adaptation, and in terms of religion and belief, which were similar everywhere.

This scarcity of specific detail is particularly apparent for southern valley tribal group distribution. According to Kroeber (1925:478), the Tulamni occupied the edges of Buena Vista Lake and the southwestern end of the valley, the Hometwoli lived in and around Kern Lake to the east, the Tuhohi (or Chuxoxi) resided near the mouth of Kern River as it drained north into Tulare Lake, and Yauelmani territory comprised the southeastern side of the valley, extending north into Bakersfield proper. The Project area then

likely falls within Yauelmani territory. Kroeber identifies the villages of *Tsineuhiu*, west of Bakersfield on the Kern River, *Woilo* in Bakersfield proper, *Kuyo* south of Bakersfield, *Tulamniu*, at the northwestern edge of Buena Vista Lake, *Hoschiu* on Bitter Water Creek, and *Wogituu*, near McKittrick. None of these villages are within or close to the study area.

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

The tribelet was headed by a chief who was aided by a variety of assistants, perhaps the most important of whom was the *winatum*, a herald or messenger and assistant chief. A shaman served as a religious officer but did not have any direct political authority in a strict sense although, as Gayton (1930) has illustrated, they maintained substantial influence within their tribelet.

Shamanism is a religious system common to many Native American tribes. It involves a direct and personal relationship between each individual and the supernatural world, with this relationship enacted by entering a trance or hallucinatory state (usually through the ingestion of psychotropic plants such as jimsonweed or, more typically, native tobacco). Shamans, per se, were considered individuals with an unusual degree of supernatural power, and they served as healers or curers, diviners, and controllers of natural phenomena (such as rain or thunder). Shamans are also known to have produced the rock art of this region, which depicted the visions they experienced in their 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, which was always the same. It started in the spring with the jimsonweed ceremony, then the rattlesnake dance, and finally (where appropriate), the first salmon ceremony. Fall rituals began in the late summer after returning from seed camps with the mourning ceremony, followed by first seed and acorn rites, and then the bear dance (Gayton 1930:379). In each case, shamans served as ceremonial officials responsible for specific dances which, at the most fundamental level, involved a display of their supernatural powers (Kroeber 1925).

Subsistence practices varied from tribelet to tribelet likely due to specific environments of residence. Throughout Native California, and Yokuts territory in general, the acorn was a primary dietary component, as were a variety of gathered seeds. The valley tribes augmented this resource with lacustrine and riverine foods, especially fish and wildfowl.

Although population estimates vary, and population size was greatly affected by Euro-American introduced diseases and social disruption more generally, the Yokuts were one of the largest and most successful groups in Native California. Cook (1978), for example, estimates that the Yokuts region contained fully 27 percent of the aboriginal population in the state at the time of contact; some other estimates are even larger.

## 2.3 PRE-CONTACT ARCHAEOLOGICAL BACKGROUND

The southern San Joaquin Valley region, though far from remote in relation to other portions of California, has received minimal archaeological attention compared to other areas of the state. In part, this is probably due to the fact that the majority of California archaeological work has concentrated in the Sacramento Delta, Santa Barbara Channel, and central Mojave Desert areas (see Moratto 1984). Although our knowledge of the prehistory of this region is therefore limited in specific details, enough is known to determine that the archaeological record is broadly similar to south-central and 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). Siefkin (1999), in fact, has shown that, at least during the last approximately 1,000 years, southern San Joaquin Valley prehistory was most similar to the Santa Barbara region to the west. Based on this fact, the general prehistory of the study area and its vicinity 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 YBP. Evidence of this early use of the region has been revealed by the discovery of characteristic fluted and stemmed points found around the margin of Tulare Lake, in the foothills of the Sierra, on the Carrizo Plain, 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 in other portions of western North America at this same time, although little else is known about these earliest peoples. Additional finds consist of a Clovis-like projectile point discovered in a flash-flood cut-bank near White Oak Lodge in 1953, on the Tejon Ranch (Glennan 1987a, 1987b). More recently, a similar fluted point has been found near Bakersfield (Zimmerman et al. 1989), while a number are known from the Edwards Air Force Base and Boron area of the western Mojave Desert. Although it has now been well-established that human occupation of the state occurred during the Late Pleistocene, relatively little can yet be inferred about the nature and distribution of this occupation, with just a few exceptions. First, there is little evidence to support the idea that these Paleo-Indian peoples were necessarily big-game hunters similar to those found on the Great Plains. Second, the western Mojave Desert evidence, at least, suggests small, very mobile populations that have left minimal archaeological remains. Substantial evidence for human occupation of California first occurs during the Middle Holocene, from roughly 7500 to 4000 YBP. This period is known as the Early Horizon and is sometimes alternatively referred to as the Early Millingstone along the Santa Barbara Channel. In this southern area, population concentrated along the coast, with minimal visible use of inland areas. Adaptation appears to have emphasized hard seeds and nuts, with tool-kits dominated by mullers and grindstones (manos and metates). Minimal evidence of Early Horizon occupation has been found in most inland portions of the state. In part this may be due to a severe cold and dry paleoclimatic period which occurred at this time. Regardless of specifics, it appears that Early Horizon population density was low and, if any kind of specialized subsistence adaptation existed, it was probably tied to plant-food gathering rather than hunting.

Environmental conditions improved dramatically after about 4000 YBP, during the Middle Horizon (or Intermediate Period). This period is known climatically as the Holocene Maximum (which, strictly, starts at about 3800 YBP) and it was characterized by significantly warmer and wetter conditions than were experienced previously. Archaeologically, it was marked by a 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 marked by the appearance of the Windmiller culture, which exhibited a high degree of ritual elaboration (especially in burial practices). 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 that the so-called "Shoshonean Wedge" in southern California, or the Takic-speaking groups that included the Gabrielino/Fernandeño, Tataviam, and Kitanemuk, may have moved into this region at this time, rather than at about 1500 YBP as first suggested by Kroeber (1925).

Evidence for Middle Horizon occupation of interior south-central California is substantial. In northern Los Angeles County, along the upper Santa Clara River, for example, the Agua Dulce village complex includes occupation extending back to the Intermediate Period, at which time population of the village may have

been 50 or more people (King et al. n.d.). Similarly, the inhabitation of the Hathaway Ranch region, near Lake Piru, and the Newhall Ranch, near Valencia, appears to have begun during the Intermediate Period (W&S Consultants 1994). To the west, there is little or no evidence for pre-Middle Horizon occupation in the upper Sisquoc and Cuyama river drainages, with population appearing for the first time there at roughly 3500 YBP (Horne 1981). The Carrizo Plain experienced a major population expansion during the Middle Horizon (W&S Consultants 2004; Whitley et al. 2007). Moreover, more recently collected data indicate that the Tehachapi Mountains region was first significantly occupied during the Middle Horizon (W&S Consultants 2006), and 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 to 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 very local circumstances and events, it is increasingly clear that this was a major occurrence throughout southern California, and therefore any explanation of it must be sought at a larger level of analysis (Whitley 2000). Moreover, evidence from the Carrizo Plain suggests that the origins of the tribelet level of political organization may have developed during this period (W&S Consultants 2004; Whitley et al. 2007). Whether this same demographic process holds for the southern San Joaquin Valley is yet to be determined.

The beginning of the Late Horizon is set variously at 1500 and 800 YBP, although a consensus is developing for the shorter chronology for this time period. In fact, there is increasing evidence for the importance of the Middle-Late Horizons transition, from roughly AD 800 to 1200, in the understanding of south-central California. This corresponds to the so-called Medieval Climatic Anomaly, a period of climatic instability that included major droughts and resulted in demographic disturbances across much of western North America (Jones et al. 1999). It is also believed to have resulted in major population decline and abandonments across south-central California, involving as much as 90 percent of the interior populations in some regions, such as the Carrizo Plain (Whitley et al. 2007). It is not yet clear whether this site abandonment was accompanied by a true reduction in population or instead an agglomeration of the same numbers of peoples into fewer but larger villages in other areas. What is clear, however, is the fact that Middle Period villages and settlements were widely dispersed across the landscape, including at many locations that lack contemporary evidence of fresh water sources. Late Horizon sites, in contrast, are typically located where fresh water was available during the historical period, if not currently.

The subsequent Late Horizon then can be best understood as a period of recovery from a major demographic collapse. One result is the development of the regional archaeological cultures that are the precursors to ethnographic Native California. That is, the ethnographic lifeways recorded by anthropologists are believed to extend back into the past for roughly 800 years.

The position of southern San Joaquin Valley prehistory relative to the patterns seen in surrounding areas is still somewhat unknown (cf. Siefkin 1999). 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 prehistoric demographic trends for the southern San Joaquin Valley, and determining how these trends (if present) correlate with those seen elsewhere, was one of the research objectives within the current study area.

## **2.4 HISTORIC-ERA BACKGROUND**

Spanish explorers first visited the southern end of 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. Population throughout the area grew rapidly with this rush, with new immigrants 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 to 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.

As unproductive land was reclaimed in the southern San Joaquin Valley, grants were given to individuals who had both the resources and the finances to undertake the operation alone. A 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, eventually, 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 mi, and their impacts were widespread. 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, more than 100 mi. of the San Joaquin River with the San Joaquin and Kings River Canal and Irrigation System. They were 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 (Levine 2011).

### ***Rosedale Area & RRBWSD History***

The community of Rosedale is located immediately west of Bakersfield. It was formed in the late 1870s after investors enticed prospective buyers to lay claim to the land in the southern San Joaquin Valley. The dry climate of the valley and the rich soil it provided when irrigated from local water resources drew people to ranch and farm the land. The construction of the Calloway Canal in 1875 was an impetus for land sales in the area. People were drawn to the profitable irrigated land that this canal provided, sourcing its water supply from the Kern River. Marketing was particularly focused on English settlers who emigrated from the United Kingdom to the area called “Rosedale” for its abundant natural supply of roses. S.W. Fergusson, manager of the Kern Land Company, printed ads in English newspapers proclaiming the abundance of farmland in Rosedale. In March 1890, the first English emigrants arrived in Rosedale and purchased land. By 1889, Rosedale had a town site and appeared to be growing. In the next few years, Rosedale residents suffered drought, and the nation suffered financial panic in the mid-1890s. Colonization efforts failed by the turn of the twentieth century. Although the Santa Fe Railroad laid tracks through Rosedale in 1899, attempts at reviving the area failed (Lynch 2006).

Through the twentieth century, the Rosedale area became a quiet suburb of the growing city of Bakersfield. As irrigation efforts of the San Joaquin Valley increased in the twentieth century, more water districts, formed by local landowners and farmers, were established.

The RRBWSD was founded in 1959, named after the community of Rosedale and the nineteenth-century Mexican moniker for the Kern River, “Rio Bravo” (Lynch 2006). It was created to construct and operate a groundwater recharge project to offset declining groundwater levels. These declines largely resulted from the construction of the Lake Isabella Dam on the Kern River, completed in 1954.

The Goose Lake Slough, which branches off the Kern River to the south of the Rosedale area, was initially modified in 1874 when the head of the slough was cleaned and enlarged and a regulator was placed across it (Grunsky 1898). Channelization of the slough resulted from the construction of the Lake Isabella Reservoir, completed in 1953. It is currently entirely channelized and it terminates in a series of RRBWSD recharge basins. Renamed the Goose Lake Channel, it connects to both the Kern River and the Cross Valley Canal.

The Cross Valley Canal is the Kern County Water Agency’s (KCWA) primary conduit for water delivered to and from the California Aqueduct (KCWA n.d.). The canal was built in 1975 to supply Bakersfield with SWP water, and it has been expanded between 2005 and 2012. Currently, the canal is more than 21 mi. in length (KCWA n.d.).

The sandy-bottomed Kern River proved very inefficient for moving water through the flats of the San Joaquin Valley. The Kern County Land (KCL) Company, successor to Miller and Lux, owned most of these rights. It created the concrete-lined Kern River Canal in 1963, which is south of and parallels the current riverbed, to improve its water supply west of Bakersfield. The creation of the lined channel contributed to groundwater problems in the City of Bakersfield. In 1970, the City sued Tenneco, which had acquired KCL

in 1967, obtaining its lands, infrastructure, and water rights by legal settlement in 1976 for \$18 million (Stetson 1975; Water Resources Department 2003). The City now operates the Kern River Canal and controls use of the Kern River through its boundaries, which is usually dry west of Highway 99.

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## 3. ARCHIVAL RECORDS SEARCH AND TRIBAL COORDINATION

### 3.1 ARCHIVAL RECORDS SEARCH

For this study, ASM utilized an archival records search conducted at the Southern San Joaquin Valley Information Center (SSJVIC), California State University, Bakersfield. This records search was utilized to determine whether the study area had been previously surveyed for cultural resources, and/or whether any such resources were known to exist on it. The records search was reviewed to determine: (i) if prehistoric or historical archaeological sites had previously been recorded within the study area; (ii) if the study 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 National Register of Historic Places, Historic Property Data File, California Inventory of Historic Resources, and the California Points of Historic Interest. The results of this archival records search are summarized here; see Confidential Appendix A for records search results.

According to the SSJVIC, 33 previous archaeological study reports have been conducted within 0.5-mi. of the study area; of these, 11 cover a portion of the study area (Table 1). The SSJVIC results identified four previously recorded cultural resources within the study area and an additional nine within a 0.5-mi. buffer of the study area (Table 2).

Table 1. Previous Reports

Report #	Year	Author/Affiliation	Title	Relationship to Study Area
KE-00110	1997	Schiffman, Robert A. / Bakersfield College	Archaeological investigation for GPA #18/Zcc #41 at Rosedale and Enos Lane	Outside
KE-00263	1981	Baker, Suzanne / Archaeological Consultants	Archaeological Reconnaissance of the Kern River Co-Generation Plant Gas and Electricity Pipeline Routes, Kern County, California	Outside
KE-00695	1996	<b>Murphy, Peggy B., Pruett, Catherine Lewis, and Fleagle, Dorothy / Three Girls and A Shovel</b>	<b>An Archaeological Assessment of 58.13 Acres Northwest of Bakersfield, Kern County, California - Castle and Cooke, Vesting Tentative Tract No. 5489, Parcel Map 4244</b>	<b>Within</b>
KE-0862	1995	Parr, Robert E. / California State University, Bakersfield	Archaeological Survey Report for a Proposed Route Adoption on Highway 58, Bakersfield, Kern County, California	Outside
KE-0866	1992	<b>Parr, Robert E. and Osborne, Richard / California State</b>	<b>Archaeological Survey Report for the Proposed Route Adoption Study on Highway 58, Bakersfield, Kern County, California</b>	<b>Within</b>
KE-01315	1988	Schiffman, Robert A. / Bakersfield College	Archaeological Investigation for 40 Acre Subdivision, Kern County, California	Outside
KE-01497	1996	Schuster, T.J. / Individual Consultant	Negative Archaeological Survey Report for Overlay & Widening of Route 43 from Route 58 to .3 Mile S. of Lerdo Highway PM 8.1-16.3	Outside
KE-01633	1980	Swenson, Laurie, Clayton, Al, and Jahani, Andre / California Department of Transportation	Archaeological Survey Report for Bridge Widening at Goose Lake Slough	Outside
KE-01728	1984	<b>Uli, Jim and Schiffman, Robert A. / Bakersfield College</b>	<b>Archaeological Investigation of Proposed Rosedale Wastewater Sewage Treatment Plant, 1600 Acres Bakersfield, Kern County, California</b>	<b>Within</b>

3. Archival Records Search and Tribal Coordination

Report #	Year	Author/Affiliation	Title	Relationship to Study Area
KE-01740	1992	Valdez, Sharynn-Marie / California State University, Bakersfield	An Archaeological Assessment of 41.69 Acres of Land West of Bakersfield, Kern County, California / Cultural Resource Facility, California State University, Bakersfield	Within
KE-02226	1998	Laylander, Don / California Department of Transportation	Second Supplemental Archaeological Survey Report for the Highway 58 Route Adoption Project (Stockdale Highway Alternative), Bakersfield, Kern County, California / California Department of Transportation	Within
KE-02278	1999	Gassner, Sarah, Nishamura, Lisa, Chick, Philip, Hoang, James, and Tackett, Will / Jones & Stokes Associates, Inc.	Cultural Resources Inventory Report for Williams Communications, Inc. Fiber Optic Cable System Installation Project, San Luis Obispo to Bakersfield, Volume I / Jones & Stokes Associates, Inc.	Within
KE-02323	1999	Demos-Petropoulous, Francine, McGowan, Dana, Scott, Barry, O'Brien, Teresa, Norton, Bill, and Rause, Wendy / Jones & Stokes Associates, Inc.	Cultural Resources Inventory Report for the AT&T Corp. Cable Upgrade Project, Los Angeles, Kern, and San Luis Obispo Counties, California	Outside
KE-02490	2001	Hudlow, Scott M. / California Department of Transportation	Negative Archaeological Survey Report: 06- KER-43, PM 0.0/9.0 / Bakersfield, Kern County, California / California Department of Transportation	Within
KE-02807	1993	Herbert, Rand F. / JRP Historical Consulting Services	Historic Resource Evaluation Report: Tier 1, Route Adoption on Route 58 Between I-5 and State Route 99	Within
KE-03419	2006	Hudlow, Scott M. / Hudlow Cultural Resource Associates	A Phase I Cultural Resource Survey for APNs 104-292-28 and 29, Stock Manufacturing Site, Enos Lane, Kern County, California	Outside
KE-03482	2004	Hudlow, Scott M. / Hudlow Cultural Resource Associates	A Phase I Cultural Resource Survey Alliance Appraisal, Strand Ranch, Kern County, California	Outside
KE-03483	2003	Pruett, Catherine Lewis / Hudlow Cultural Resource Associates	A Phase I Cultural Resource Survey Alliance Appraisal, Bardeen Partners, Kern County, California	Outside
KE-03514	2007	Hudlow, Scott M. / Hudlow Cultural Resource Associates	A Phase I Cultural Resource Survey for APN 407-32-023 and 24, Brimhall Road, Bakersfield, Kern County, CA	Outside
KE-03674	2008	Hudlow, Scott M. / Hudlow Cultural Resource Associates	A Phase I Architectural Survey Bureau of Reclamation, Strand Ranch Kern County, California	Outside
KE-03748	2007	Manney, Shelby / TRC Companies	Cultural Resource Assessment Inergy Propane Pipeline: North Coles Levee Oil Field to Rogas Rail Terminal	Outside
KE-03749	2009	Glentis, Dionisios and Stropes, Tracy Shelby / TRC Companies	Cultural Resources Monitoring Report: ARB/Inergy-North Coles Levee Oil Field to Rogas Rail Terminal Pipeline Project Tupman, California to Bakersfield, California	Outside
KE-03769	2009	Gassner, Sarah, Nishamura, Lisa, Chick, Philip, Hoang, James, and Tackett, Will / Three Girls and A Shovel	A Cultural Resources Assessment for APN 104-291-52, 5.38 Acres on Enos Lane and Development Way West of Bakersfield, Kern County, California	Outside

3. Archival Records Search and Tribal Coordination

Report #	Year	Author/Affiliation	Title	Relationship to Study Area
KE-03777	2010	Palm-Leach, Laura, Brandy, Paul, King, Jay, Mikkelsen, Pat, Seil, Libby, Hartman, Lindsay, Bradeen, Jill, Larson, Bryan, Freeman, Joseph, Costello, Julia, Rosenthal, Jeffrey, and Jones, Deborah / Far Western Anthropological Research Group, Inc.	Cultural Resources Inventory of Caltrans District 6 Rural Conventional Highways in Fresno, Western Kern, Kings, Madera, and Tulare Counties Summary of Methods and Findings	Outside
KE-03840	2009	Miller, Michelle A. / California Department of Transportation	Historic Property Survey Report for Kern 119/43 Overlay Project on States Routes 119 and 43, Kern County	Outside
KE-04262	2012	<b>Hudlow, Scott M. / Hudlow Cultural Resource Associates</b>	<b>A Phase I Cultural Resources Survey for Proposed Plains LPG Service Pipeline Inergy Gas Plant to Plains LPG Facility, Kern County and City of Shafter, California</b>	<b>Within</b>
KE-04538	2013	<b>Ehringer, Candace, Lockwood, Chris, and Marks, Brian / ESA</b>	<b>IRWD Stockdale West Ranch Joint Banking Project Draft Phase I Cultural Resources Study</b>	<b>Within</b>
KE-04550	2012	Loftus, Shannon / Ace Environmental	Cultural Resource Records Search and Site Survey AT&T Site BKCL47 (35033) Frito Lay 2851 Ada Road Bakersfield, Kern County, California	Outside
KE-04550A	2012	Loftus, Shannon / Ace Environmental	Historic Architectural Resource -Inventory and Assessment AT&T Site BKCL47 (35033) Frito Lay 2851 Ada Road Bakersfield, Kern County, California	Outside
KE-05012	2018	<b>Wickstrom, Brian / California Department of Transportation</b>	<b>Historic Property Survey Report for the State Route 43 and 119 Pavement and Rehabilitation Project West of Bakersfield, Kern County, California</b>	<b>Within</b>
KE-05012A	2018	Wickstrom, Brian / California Department of Transportation	Archaeological Survey Report for the State Route 43 and 119 Pavement and Rehabilitation Project West of Bakersfield, Kern County, California	Outside
KE-05012B	2018	Wickstrom, Brian / California Department of Transportation	Environmentally Sensitive Area Action Plan For The State Route 43 and 119 Pavement and Rehabilitation Project West of Bakersfield, Kern County, California	Outside
KE-05039	2018	McCarthy-Reid, Amy / Parsons Corporation	Centennial Corridor Project Re-validation #9 State Route 43 (Enos Lane)/Stockdale	Outside
KE-05131	2019	Kleam, Samantha / California Department of Transportation	Historic Property Survey Report (NEGATIVE) for West Rosedale CAPM Project, Kern County, California	Outside
KE-05131A	2019	Heilmann, Nathaniel / California Department of Transportation	Architectural History Compliance Memo for the Rosedale CAPM Project in Kern County on SR 43 at Postmile 8.25 and SR 58 at Postmile 39.9/46.0	Outside
KE-05131B	2019	Valentin, Sylvere CM / California Department of Transportation	Archaeological Survey Report (Negative) for West Rosedale CAPM Project, Kern County, California	Outside
KE-05459	2021	<b>Whitley, David S. and Carey, Peter A. / ASM Affiliates</b>	<b>Class III Inventory/Phase I Survey, Rosedale-Rio Bravo Water Storage District, Groundwater Banking and Conveyance Improvement Project, Kern County, California</b>	<b>Within</b>

Table 2. Previously Recorded Resources

Primary #	Type	Description	Eligibility Status	Relationship to Study Area
<b>P-15-002050</b>	<b>Structure, Object, Site</b>	<b>Southern Pacific Railroad, abandoned China Lake Railroad Spur grade</b>	<b>Recommended not eligible</b>	<b>Within</b>
P-15-008000	Building	Unknown	Unknown	Outside
P-15-008026	Structure	Cross Valley Canal	Recommended not eligible	Outside
P-15-008066	Building	Unknown	Unknown	Outside
P-15-008098	Building	Unknown	Unknown	Outside
<b>P-15-008121</b>	<b>Structure</b>	<b>Goose Lake Slough</b>	<b>Determined not eligible</b>	<b>Within</b>
P-15-008172	Building	Unknown	Unknown	Outside
P-15-009312	Other	Broken isolated cottonwood projectile point	Unevaluated	Outside
P-15-012769	Structure	Oil pump and well	Recommended not eligible	Outside
P-15-015199	Building	Strand Ranch House	Unevaluated	Outside
P-15-015818	Other	Isolated white chert flake	Unevaluated	Outside
<b>P-15-017760</b>	<b>Structure</b>	<b>Oil tank farm</b>	<b>Recommended not eligible</b>	<b>Within</b>
<b>P-15-017761</b>	<b>Structure</b>	<b>Pioneer Canal</b>	<b>Unevaluated</b>	<b>Within</b>

## 3.2 TRIBAL COORDINATION

On August 14, 2024, the Native American Heritage Commission (NAHC) was contacted to request a list of Tribes traditionally and culturally affiliated with the study area, as well as a Sacred Lands File (SLF). The NAHC did not respond to the request; however, a separate request sent out on the same date for an adjacent project was returned with negative SLF results and six Tribal contacts from six Tribes. This response letter was utilized for outreach since it was deemed adequate based on previous experience in the area. Outreach letters were mailed to all listed Tribes on December 17, 2024, and follow-up emails were sent on January 3, 2025. Additional letters were sent to Tribes on September 23, 2025 to include the transmission lines, which were not included in the original letters. Follow-up emails were also sent on October 9, 2025. Documentation of the request made to the NAHC and the results of the outreach are available in Appendix B.

The Santa Rosa Rancheria Tachi Yokut Tribe responded, stating, in part, “*Due to the location of this project the Tribe will be deferring to the more local tribes of the area.*” Additionally, the Tejon Indian Tribe was a respondent, stating, “*In response to the project mentioned above, we don't currently have any knowledge of tribal cultural resources within the project. We do, however, know that the area was well-traveled by the Yokuts, Yowlumne, and Tulumne people. We recommend the project proceed as planned with the lone stipulation that the Tribe be notified if inadvertent discoveries are made.*” No other responses were received.

## 4. METHODS AND RESULTS

### 4.1 FIELD METHODS

A Phase I survey of the approximately 203 ac. study area was conducted on November 6, 2024, October 10, 2025, and October 16, 2025, by ASM Associate Archaeologist Robert Azpitarte, BA, and ASM Assistant Archaeologists Daniel Ware, BA, and Margarita Medina Lemus, BA. The field methods employed followed the California Office of Historic Preservation Instructions for Recording Historic Resources, using DPR 523 forms.

The site boundaries, features, any diagnostic artifacts and concentrations of artifacts were all plotted on electronically generated maps created with ESRI's ArcMap software. Feature documentation, in addition to mapping, consisted of photography and descriptions. Artifact documentation involved a tabulation of the varieties of artifactual materials and types present, with photography and tabulation of the temporally diagnostic specimens. No artifact collection occurred because the kinds of artifacts present are all mass-produced, twentieth-century objects that do not justify curation. Given the nature of the site, no subsurface test excavation was conducted as the presence of an intact subsurface archaeological deposit was highly unlikely.

The study area was examined by the crew walking parallel transects spaced at 15-meter (m) intervals. The ground visibility in the study area was generally fair to poor, with 65 to 90 percent of the study area being developed for agriculture creating 10 to 45 percent ground visibility. Areas of heavy disturbance were therefore common in the study area. Exposed disturbances of natural ground were examined to determine whether they contained cultural resources, with particular attention paid to rodent burrow spoils piles and the cleared edges of disturbed areas. Disturbances from agricultural field development were common across the entirety of the study area.

### 4.2 RESULTS

The study area is within an active agricultural community, with graded dirt roads, above and below-ground transmission lines, agricultural wells for irrigation, and other crop production-related facilities common within the study area and its vicinity (Figure 2). As a result of the Phase I survey, one newly identified site (temporary field designation DILLARD-SITE-1) was recorded, in addition to updates to four previously identified resources (P-15-002050, P-15-008121, P-15-017760, and P-15-017761). A site description and CRHR eligibility evaluation for evaluated sites are presented in the following section, and DPR site records are available in Confidential Appendix C for the newly recorded site and updated sites. The site records contain all site photographs, including overview and feature photographs; a GIS resource location map; and a GIS site sketch map.

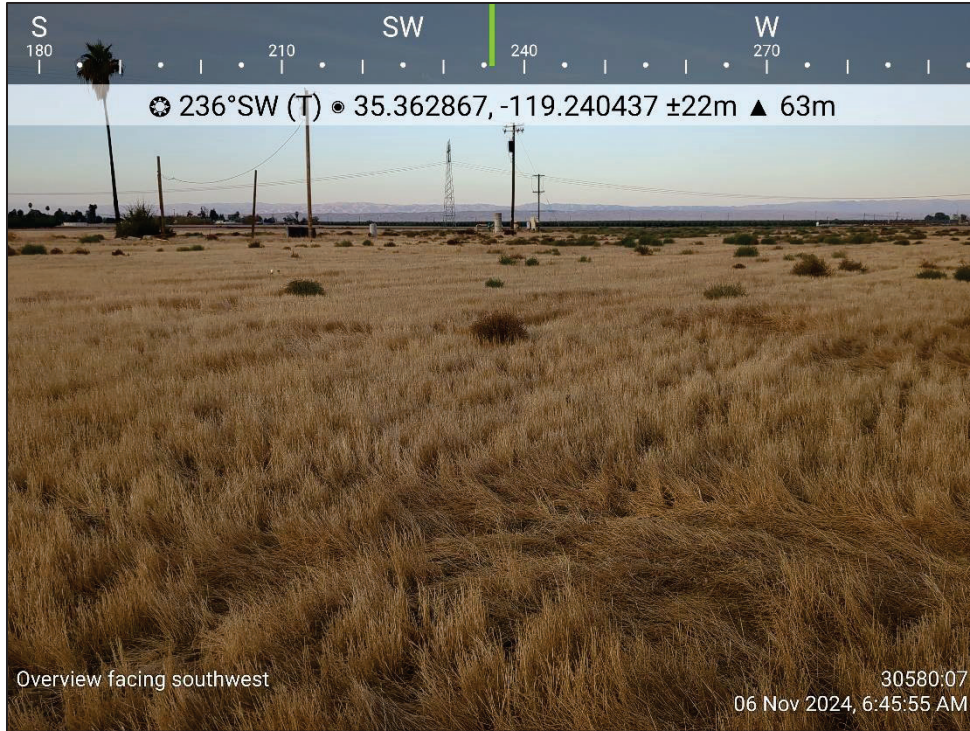


Figure 2. Study area overview showing terrain, agricultural developments, and prior disturbances including transmission lines and agricultural-production-related facilities. View southwest.



Figure 3. Study area overview showing horizon, topography and canal system. View south southwest.

## Previously Recorded Resources

### ***Southern Pacific Railroad (P-15-002050)***

Resource P-15-002050 is recorded as the Southern Pacific Railroad with numerous spur lines. In the study area, the railroad is currently operating as the Santa Fe Railroad controlled by the Burlington Northern Santa Fe Railway. The study area crosses the railway four separate times. Due to right-of-way encroachment, the powerlines will either be placed above ground with poles outside of the right-of-way, or below the grade by horizontal boring. Therefore, the railway itself is outside of the study area and will not be impacted by Project construction. For this reason, no update was performed on resource P-15-002050.

### ***Goose Lake Slough (P-15-008121)***

Resource P-15-008121 is the Goose Lake Slough. Goose Lake Slough was a natural drainage that was first modified in 1874 when a regulator was built across the cleaned and enlarged head of Goose Lake Slough (Grunsky 1898). The slough itself remained unchanged for 80 years, until the mid-1950s when it was initially channelized in conjunction with the construction of Isabella Reservoir (Whitley et al. 2015). One segment of the canal was recorded by JRP Historical Consulting Services (JRP) in 1993 near Renfro Road. This segment of the canal was named the “Rio Bravo Canal” by JRP. ASM recorded an approximately 230-ft. long segment of Goose Lake Slough in 2020 adjacent to the study area. ASM recommended the recorded segment not eligible for the NRHP or CRHR. According to the Built Environment Resources Directory (BERD) for Kern County, the Goose Lake Slough was determined ineligible for the National Register of Historic Places (NRHP) by consensus through the Section 106 process (NRHP Status Code 6Y) in 1997. This decision was upheld in 2004. Goose Lake Slough has not been evaluated for eligibility to the CRHR or local listing; however, it is unlikely it would be found eligible given it has been determined not eligible for the NRHP.

ASM identified several segments of Goose Lake Slough during the current field study. The slough varies by Section, though it mostly remains as described in previous records. The general area around the slough consists of orchards and agricultural fields bisected by various dirt roads. No water was present in the slough during the survey.

**Section 25:** The natural course of the Goose Lake Slough extends into Section 25. This portion of the slough measures approximately 80 ft. wide and 10 ft. deep and is surrounded by a series of existing basins. A review of historic aerial imagery showed no evidence that this segment has ever been channelized or realigned. No significant features were identified in this portion of the slough.

**Section 27:** Two segments of Goose Lake Slough were identified in Section 27. The eastern segment in Section 27 is channelized and measures roughly 45 ft. wide by 10 ft. deep. The natural course of Goose Lake Slough has been destroyed in this area. Historic aerials reveal the eastern segment in Section 27 was realigned and channelized between 1967 and 1968. It has remained unchanged since that time. No significant features were identified in this portion of the slough.

The western segment in Section 27 follows the natural course of Goose Lake Slough; however, it was channelized sometime between 1961 and 1967 based on historic aerials. Sometime between 1968 and 1984 a retention basin was constructed surrounding the segment. This segment is difficult to measure due to flooding, but likely measures roughly 45 ft. wide by 10 ft. deep.

**Section 28:** A segment of Goose Lake Slough was identified on the eastern side of Section 28. This segment of Goose Lake Slough represents the western extent of the slough, beyond which to the west the slough enters retention basins and no longer exists. This segment measures roughly 45 ft. wide by 10 ft. deep.

A north south road separates the segments in Section 27 and Section 28. At this road there are five concrete box culverts. These measures approximately 8 ft. by 3 ft. by 4 ft. with 3-ft. diameter culverts with metal grates.

**P-15-017760**

Site P-15-017760 is a historic-era tank farm consisting of 15 oil production related features likely associated with the Strand Oil Fields. The entire site measures 1,576 ft. north to south by 2,328 ft. east to west, for an area of approximately 72 ac. This resource was recorded as a tank farm in 2012 (McLean 2012).

ASM revisited the site during the current field study. None of the features identified within the original recording are located within the study area and, therefore, the site will not be impacted by the Project. No update was performed on the site as there were no features within the study area to update.

**Pioneer Canal (P-15-017761) (Destroyed)**

Resource P-15-017761 is a portion of the historic-era Pioneer Canal. This resource no longer exists within the study area. The segment of Pioneer Canal was removed prior to 1984 based on historic aerials. This work likely occurred when the Cross Valley Canal was constructed in 1975. The Cross Valley Canal runs roughly parallel to the previous alignment of the Pioneer Canal approximately 750 ft. to the south.

**Newly Recorded Resources**

**DILLARD-SITE-1**

DILLARD-SITE-1 is an agricultural maintenance shed with associated components located just west of Bakersfield and southwest of Calder’s Corner. The site measures 290 ft. (east-west) by 60 ft. (north-south) and is situated on open flats surrounded by active agricultural fields. The site is in fair condition.

The site consists of a shed structure and associated foundation (F1), tanks (F2 and F3), and a well pump station (F4). According to historic aerial imagery, at least three structures were located at the site by at least 1952. By c. 1984, two of the three structures appear to have been destroyed, with the remaining shed structure located at the east end of the site. All existing associated components are west of the shed. Undiagnostic and fragmented debris was observed throughout the site and contemporary farming equipment was noted just northeast of the structure. The site is bounded on the north by a contemporary transmission line with wooden poles. All identified features are described below in Table 3.

Table 3. Feature Descriptions

Designation	Description
F1	F1, the structure, is a single-story utilitarian sheet-metal shed structure that measures approximately 216 square feet (sq. ft.), measuring approximately 18 ft. (north-south) by 12 ft. (east- west) by 10 ft. tall. The shed was constructed using round head nails, and on top of a larger poured concrete foundation that measures 32 ft. (east- west) by 18 ft. (north-south). It has a slightly asymmetrical primary façade with two externally hinged sheet metal doors on the west. A simple window frame (now covered) is on the east façade. The shed has a slightly pitched, sheet metal roof with no exposed wood plank rafters and extending sheet metal eaves on the north and south. At the time of the survey, the shed was filled with modern trash, including discarded furniture, hoses, metal barrels, and plastic tubs. Although this shed rests on the original c. 1950s foundation, it is unclear whether this structure replaced a larger one at some point after the destruction of the adjacent structures c. 1980s.
F2	Immediately west of the shed, is a welded and pressurized tank measuring 3.5 ft. in diameter by 7.5 ft. in length. A welded placard on the tank reads “MFD. BY BUEHLER TANK AND WELDING WORKS LOS ANGELES – CUCAMONGA CA. PRESSURE 6 LBS”. According to the California Department of Industrial Relations (CDIR 2025), Buehler Tank and Welding Works has manufactured pressurized tanks in the Los Angeles area since at least 1956.

Designation	Description
F3	Adjacent to F2, is a small vertical holding tank with an electrical conduit and modified with PVC piping.
F4	Furthest west of shed, consists of water pump and adjacent standpipe that also appears on historic aerial imagery as early as 1952, though it has modern attachments.

According to available records, the first sale of the property was recorded in 1979 as a deed transfer with no buyer or seller listed; however, the second event listed is a refinance in 1990 by Lonnie Dillard, so it is assumed the 1979 deed transfer was to Lonnie Dillard. The property stayed with Lonnie Dillard until 2018, when it was sold to Dave Paxton Dillard. On August 6, 2024, a loan was taken out by Lonnie Dillard and Lonnie Dillard Farming for the property. Finally, the property was sold later that month on August 16, 2024, to RRBWSD.

### 4.3 CRHR ELIGIBILITY EVALUATION

#### GOOSE LAKE SLOUGH (P-15-008121)

Goose Lake Slough has previously been determined not eligible for inclusion in the NRHP by consensus through the Section 106 process. Additionally, ASM has recommended previous nearby segments not eligible for inclusion in the NRHP or CRHR. ASM agrees with these previous determinations and recommendations for the newly recorded segments.

#### DILLARD-SITE-1

While DILLARD-SITE-1 is associated with farming and ranching in the San Joaquin Valley, it is not within the period of significance of 1870–1959, when RRBWSD formed. Additionally, the Dillard family is not a prominent or significant family in the formation of the community of Rosedale. Therefore, DILLARD-SITE-1 is recommended not eligible for inclusion in the CRHR under Criteria 1 or 2.

While F1, the main structure, is still standing, it is missing several structural components such as doors and windows. It is in a deteriorated condition, and the materials and features on its interior and exterior do not embody the distinct characteristics of a type, period, or method of construction, or possess high artistic values. Further, DILLARD-SITE-1 does not represent a significant and distinguishable entity, and its components do not have individual distinction. Preliminary research does not indicate that the structure was uniquely constructed or associated with the work of a significant engineer or builder. DILLARD-SITE-1 is utilitarian in construction and like other structures constructed during the mid-twentieth century in central California. It is not among the best or a rare surviving example of a distinctive type of structure or building either. Therefore, ASM recommends DILLARD-SITE-1 is not eligible for inclusion in the CRHR under Criterion 3.

Finally, DILLARD-SITE-1 was constructed in the mid-twentieth century and does not have the potential to provide additional information about history or prehistory that is not available through historic research. ASM recommends this structure is not eligible under Criterion 4.

In summary, DILLARD-SITE-1 is recommended not eligible for inclusion in the CRHR under any criteria.

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## 5. SUMMARY AND RECOMMENDATIONS

An intensive Phase I survey was conducted for the Rosedale-Rio Bravo Water Storage District's Dillard Groundwater Recharge and Solar Array Project, comprising 203 ac. in Kern County, California. The fieldwork was conducted in advance of anticipated groundwater recharge basin and solar development activities. An archival records search conducted prior to the fieldwork was completed at the SSJVIC. The records search indicated that 11 previous surveys had been conducted within the study area and that four previously recorded resources (P-15-002050, P-15-008121, P-15-017760, and P-15-017761) had been recorded within the study area. In addition to the records search, a search of the NAHC SLF was requested, though no response was received. A response from a separate but nearby project was utilized and outreach letters were sent. One response was received from Santa Rosa Rancheria Tachi Yokut Tribe deferring to local Tribes, and one response was received from Tejon Indian Tribe requesting to be notified if there are inadvertent discoveries during project construction.

The Project study area was surveyed by ASM archaeologists in October 2024 and October 2025, with crew walking parallel transects spaced at 15-m intervals. ASM revisited the locations of the four previously recorded resources (P-15-002050, P-15-008121, P-15-017760, and P-15-017761). Resource P-15-002050, the Southern Pacific Railroad, is currently operating as the Santa Fe Railroad within the study area. The Project will occur either above or below the railroad and it is therefore considered to be outside of the study area, and the resource was therefore not updated. P-15-017760 is a large historic-era oil operation with numerous spread-out features, none of which are located within the study area. This site was also not updated since no features exist within the study area. P-15-017761, the Pioneer Canal, is no longer extant in the study area as the alignment was removed prior to 1984, likely when the Cross Valley Canal was constructed in 1975. ASM recorded several segments of P-15-008121, Goose Lake Slough, within the study area. In addition to the previously recorded resources, one newly identified resource (temporary field designation DILLARD-SITE-1) was recorded within the recharge basin and solar array portion of the study area.

Based on a lack of integrity, DILLARD-SITE-1 is recommended not eligible for inclusion in the CRHR under any criteria. Goose Lake Slough (P-15-008121) has been determined not eligible for inclusion in the NRHP and previous segments have also been recommended not eligible for inclusion in both the NRHP and CRHR. ASM agrees with these previous determinations and recommendations for the newly recorded segments.

Based on the results of the records searches and intensive pedestrian survey of the study area, a determination of *No Significant Impact to Historical Resources* is recommended for this Project. In the unlikely event that cultural resources are encountered during the construction or operation of the proposed Project, however, it is recommended that an archaeologist be contacted to evaluate the discovery.

Should previously unidentified cultural resources be discovered as a result of project implementation, all work in the area of the find should stop and a qualified archeologist shall be notified immediately so that the resource value may be assessed.

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**CONFIDENTIAL APPENDICES**