

# **Phase I Cultural Resource Assessment for the Alabama and Palmetto Project, near the City of Redlands, San Bernardino County, California**

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*Type of Study:* Literature Search, Intensive Pedestrian Survey

*USGS 7.5' Quadrangle:* Redlands, CA

*Acreage:* ~55 acres

*Level of Investigation:* CEQA Phase I

*Key Words:* Redlands; San Bernardino County; CEQA; ~55 acres surveyed; 2 historic-period components of a gravity-fed irrigation system, a flume (Æ-3895-01H) and a weir (Æ-3895-02H)

## MANAGEMENT SUMMARY

Duke proposes the development of a warehouse project (Project) near the City of Redlands in San Bernardino County, California. The Project involves the construction of an approximate 1,192,671 square-foot high-cube, non-refrigerated warehouse building on 54.76 acres on the northwest corner of Alabama Street and Palmetto Avenue. Applied EarthWorks, Inc. (Æ) was retained to conduct a Phase I cultural resource investigation of the Project area in accordance with the California Environmental Quality Act (CEQA). The County of San Bernardino (County) is the Lead Agency for the purposes of CEQA.

This report summarizes the methods and results of the cultural resource investigation of the Project area. This assessment included a records search and literature review, communication with Native American tribal representatives, an intensive pedestrian survey, and an evaluation of significance of two cultural resources within the Project area. The purpose of the investigation was to determine the potential for the proposed Project to impact historical resources.

The literature and records search at the South Central Coastal Information Center (SCCIC) of the California Historical Resources Information System (CHRIS) indicated that 24 cultural resources have been documented within a 1-mile radius of the Project area. None of these previously identified cultural resources are located within the Project area.

As part of the cultural resource assessment, Æ also requested a search of the Sacred Lands File (SLF) from the Native American Heritage Commission (NAHC), which was completed with negative results. Native American individuals and organizations were contacted to elicit information on Native American resources within the Project area. Of the 14 groups and/or individuals contacted, Æ has received responses thus far from the San Manuel Band of Mission Indians (SMBMI), Cabazon Band of Mission Indians, Agua Caliente Band of Cahuilla Indians (ACBCI), Cahuilla Band of Indians, and the Morongo Band of Mission Indians.

Æ Archaeologist Evan Mills performed an intensive pedestrian survey of the Project area on July 5 and 6, 2018. Two historic-period components of a gravity-fed irrigation system, a flume (Æ-3895-01H) and a weir (Æ-3895-02H) were identified within the Project area and documented as a result of the survey. These resources were evaluated against California Register of Historical Resources (CRHR) significance criteria and found to be eligible for listing under Criteria 1 and 3. The resources may also be contributing elements to a possible citrus industry historic district in this portion of Redlands. A number of the 24 previously recorded cultural resources within a 1-mile radius are associated with the production of citrus. It is recommended that Æ-3895-1H and Æ-3895-02H be avoided during Project construction and preserved in place if possible. If the sites cannot be avoided, mitigation measures will need to be developed, as required by CEQA.

Results of the survey indicate that the surface of most of the Project area has been disturbed by the removal of a previous citrus grove. However, the flume and weir remain in situ. Geological information suggests that the sediments underlying the Project area consist of high-energy stream deposits related to the Santa Ana River. These types of deposits are subject to intermittent

periods of erosion and deposition and as such, the likelihood of finding intact buried archaeological resources within the Project area is low to very low. .

Field notes documenting the current investigation are on file at Æ's Hemet office. A copy of the final report will be placed on file at the SCCIC.

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# 1 INTRODUCTION

Duke proposes to construct a non-refrigerated warehouse near the City of Redlands, San Bernardino County, California. Applied EarthWorks, Inc. (Æ) was retained by Albert A. Webb Associates (WEBB) to conduct a Phase I cultural resource assessment of the project (hereafter “Project”) in accordance with the California Environmental Quality Act (CEQA). The County of San Bernardino (County) is the Lead Agency for the purposes of CEQA. Colleen Hamilton, M.A., RPA, served as Æ’s principal investigator, while Æ Associate Archaeologist Joan George, B.S., served as project manager. Fieldwork was conducted by Æ Associate Archaeologist Evan Mills. Assessment of the historic-period resources was completed by Annie McCausland, Æ Associate Architectural Historian.

## 1.1 PROJECT LOCATION AND DESCRIPTION

The Project area consists of approximately 54.76 acres of land near the City of Redlands, San Bernardino County, California (Figure 1-1). More specifically, the Project area is on the northwest corner of Alabama Street and Palmetto Avenue. The Project area is within an unsectioned portion of the San Bernardino Landgrant within Township 1 South, Range 3 West, San Bernardino Baseline & Meridian, as shown on the Redlands, California 7.5' U.S. Geological Survey (USGS) topographic quadrangle (Figure 1-2). Elevations within the Project area range from approximately 1,210 to 1,225 feet above mean sea level.

The Project will involve the construction of an approximate 1,192,671 square foot high-cube, non-refrigerated warehouse building. The majority of the lot will be paved with asphalt (831,784 square feet); however, a small portion of the lot will be landscaped (360,887 square feet). In addition, the project will construct off site road improvements consisting of partial width improvements to the ultimate cross-section (an additional 12 feet) of Alabama Street and Palmetto Avenue along the Project frontage. Ground disturbance may reach a maximum depth of 13 feet below the current grade.

## 1.2 REGULATORY CONTEXT

The Project requires discretionary approval from the County and is therefore subject to the requirements of CEQA. The CEQA Statutes and Guidelines direct lead agencies to determine whether a project will have a significant impact on historical resources. Generally, a cultural resource shall be considered “historically significant” if it meets the requirements for listing on the California Register of Historical Resources (CRHR) under any one of the following criteria (Title 14, California Code of Regulations [CCR], § 15064.5):

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

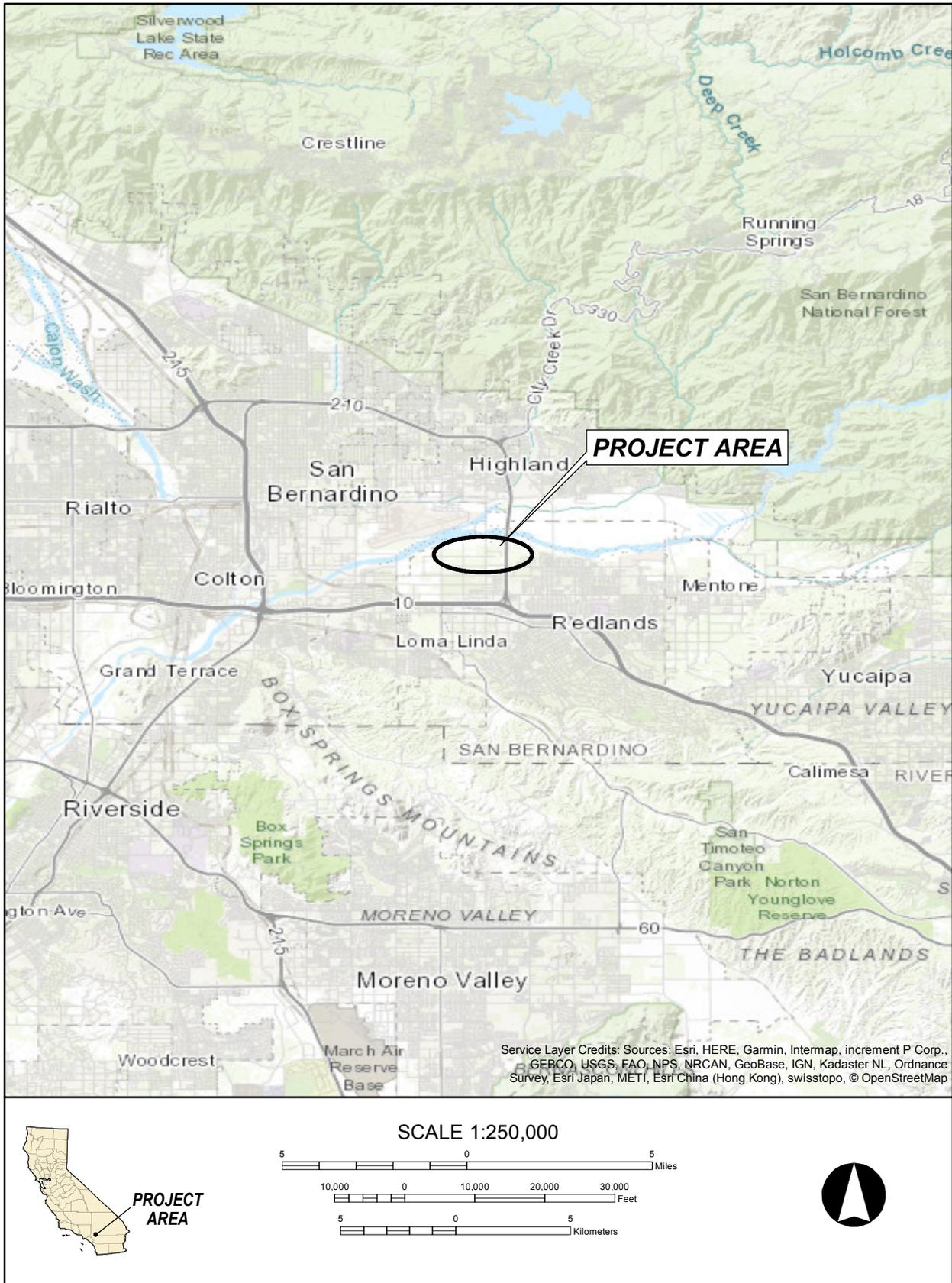


Figure 1-1 Project vicinity map.

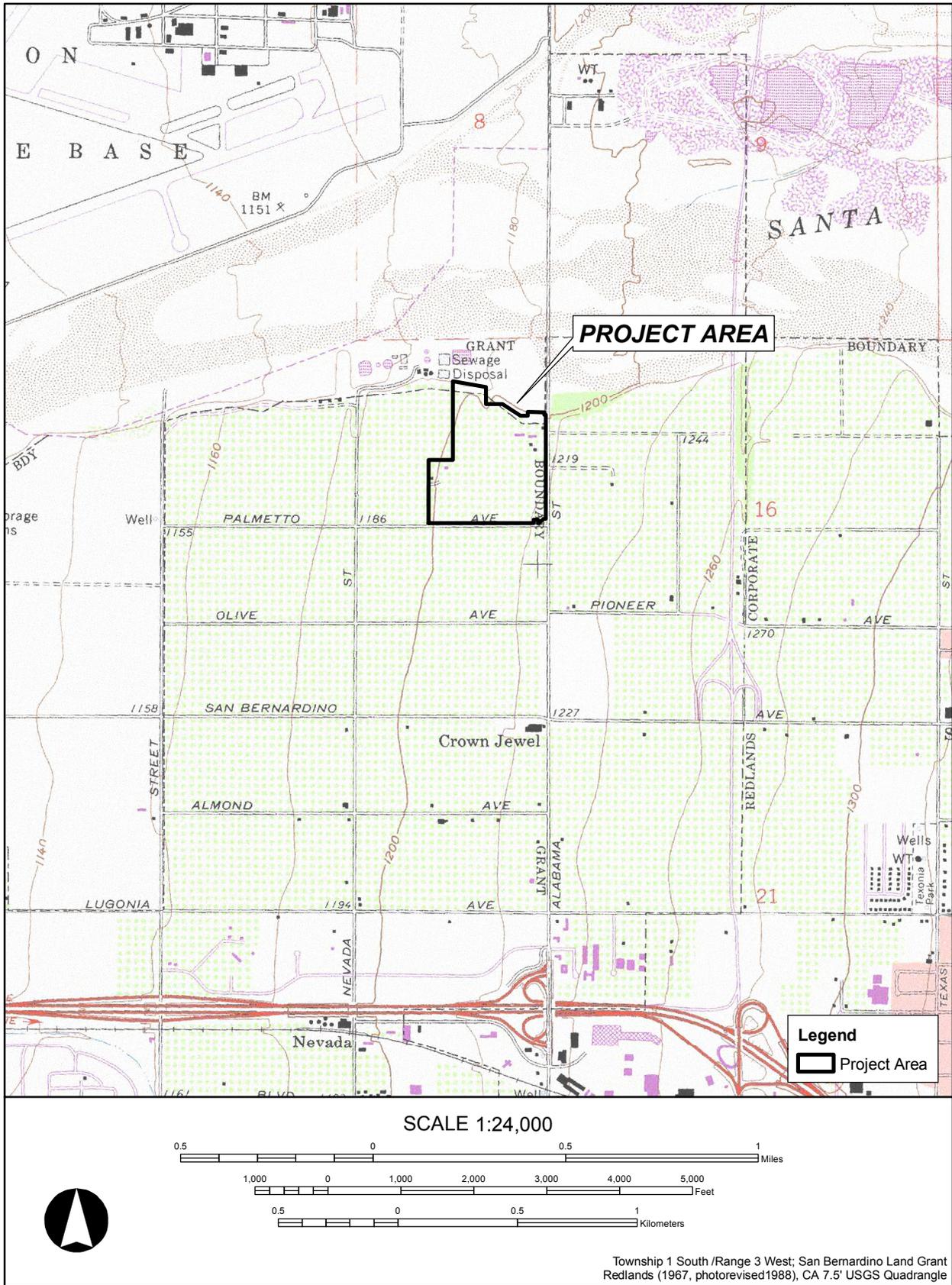


Figure 1-2 Project location map.

3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or,
4. Has yielded, or may be likely to yield, information important in prehistory or history.

In the context of projects such as the proposed parking lot development, compliance with CEQA's cultural resource provisions typically involves several steps. Briefly, archival research and field surveys are conducted, and identified cultural resources are inventoried and evaluated in prescribed ways. Prehistoric and historical archaeological sites, as well as standing structures, buildings, and objects deemed historically significant must be considered in project planning and development. A project with an effect that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment (14 CCR § 15064.5[b]).

### **1.3 REPORT ORGANIZATION**

This report documents the results of a cultural resource assessment of the proposed Project. Chapter 1 has described the Project and its location, defined the scope of cultural resource studies, and stated the regulatory context. Chapter 2 summarizes the natural and cultural setting of the Project area and surrounding region. Chapter 3 presents the results of the archaeological literature and records search. Chapter 4 summarizes the Sacred Lands File (SLF) search with the Native American Heritage Commission (NAHC) and Native American communications. The field survey methods and results are discussed in Chapter 5. Resource evaluations are included in Chapter 6. Cultural resource management recommendations are provided in Chapter 7, and bibliographic references are cited in Chapter 8. Results of the SLF search and correspondence with Native American groups are included in Appendix A, the California Department of Parks and Recreation (DPR) 523 recording forms are included in Appendix B, and the archaeological literature and records search map is included in Appendix C.

## 2 SETTING

This chapter describes the prehistoric, ethnographic, and historical cultural setting of the region to provide a context for understanding the types, nature, and significance of the archaeological resources that could be identified within the Project area. The nature and distribution of prehistoric and historic human activities in the region have been affected by such factors as topography, climate, geology, and the availability of water and biological resources. Therefore, the environmental setting of the Project area is summarized below, followed by a discussion of the cultural setting.

### 2.1 ENVIRONMENTAL SETTING

The Project area is situated on the flood plain of the upper Santa Ana River within the San Bernardino Basin at the intersection of the Peninsular and Transverse mountain ranges. The basin lies between the San Jacinto and San Andreas Faults and is filled with coarse Quaternary sediments derived from the San Bernardino Mountains (Morton and Miller 2006). The San Andreas Fault separates the San Bernardino Mountains from the San Gabriel Mountains, which were uplifted during the middle Pleistocene. The San Bernardino Valley is associated with erosion in the nearby mountains that occurred prior to their uplift. During the early Pliocene, sedimentary deposits formed in large freshwater lakes in the mountains. Late Pliocene rejuvenation of the mountains caused these lakes to fill in. As a result, streams coming down out of the mountains created a floodplain. During the late Pliocene and early Pleistocene, the sedimentary rocks folded, establishing the San Bernardino Valley by the late middle Pleistocene.

The Santa Ana River, which originates on the northern and eastern slopes of Mt. San Gorgonio, is the largest hydrological feature near the Project area, approximately 0.7 mile to the north. Mill Creek, which begins south of Mt. San Gorgonio, joins the Santa Ana River where it debouches from the mountains. Other major tributaries emerging from the southern slopes of the San Bernardino Mountains include Plunge Creek, City Creek, Waterman Creek, Devil Canyon Creek, and Warm Creek channel. Sediments directly underlying the Project area consist of young axial-channel deposits, which were deposited during the middle Holocene. Sediments are fine- to coarse-grained sand, pebbly sand, and small-cobble gravel capped by weakly developed soils; estimated thickness of the unit is between 2 and 5 meters (Morton and Miller 2006).

The climate of the region is largely determined by topographic features; climate, in turn, largely dictates the character of the biotic environment exploited by native populations. The climate of the Project area is Mediterranean, with hot dry summers and cool moist winters. It has a semi-arid precipitation regime; significant changes in temperature and moisture occur based on elevation and exposure, particularly in the nearby mountains.

Within the general Project area (i.e., San Bernardino Valley), grassland vegetation communities exist. Native species present prior to historical use and disturbance may have included rye grass (*Leymus condensatus*), blue grass (*Poa secunda*), bent grass (*Agrostis* spp.), needlegrass (*Stipa*

spp.), three-awn (*Aristida divaricata*), and members of the sunflower family (*Asteraceae*). At present, the grassland communities are dominated by exotic species such as filaree (*Erodium cicutarium*), tansy mustard (*Descurainia pinnata*), tumble mustard (*Sisymbrium altissimus*), foxtail fescue (*Vulpia myuros*), barley (*Hordeum* spp.), wild oats (*Avena* spp.), rye grass (*Lolium* spp.), cheat or brome grass (*Bromus* spp.), vinegar weed (*Trichostema lanceolatum*), and dove weed (*Eremocarpus setigerus*).

Belts of vegetation occur within the San Bernardino Mountain areas to the north. Chamise chaparral occurs on the south and west aspects below about 6,000 feet in elevation, desert scrub from about 3,000 to 9,000 feet, and coniferous forests above 6,000 feet.

## **2.2 PREHISTORIC SETTING**

The prehistory of inland southern California was influenced by cultural patterns of both the interior desert and the coastal region (Goldberg and Arnold 1988; Warren 1984). Some researchers (Goldberg et al. 2001; O'Connell et al. 1974) have also viewed the region within its own distinct cultural setting. The local cultural chronology has been built from these studies.

Occupation of western Riverside County began in the Early Archaic Period, as early as 9500 years before present (B.P.). No Paleo-Indian Period (circa 12,000–9500 B.P.) sites are known in the vicinity of the Project.

### **2.2.1 Early Archaic Period (circa 9500 to 7000 B.P.)**

During this period, the environment of the interior deserts was more favorable for human occupation than the cismontane valleys of southern California, where the Project is located. Populations exploiting the interior valleys would have been tethered to the few reliable, drought-resistant water sources such as Lake Elsinore, Mystic Lake, and possibly the Cajalco Basin. In general, small, highly mobile groups traveled widely, utilizing highly portable tool kits to procure and process critical resources, with brief and anticipated intervals of seasonal sedentism near predictable water locations. Due to isolated locations where the conditions for occupation were met, Early Archaic sites are rare compared to later periods of prehistory (Goldberg et al. 2001; Grenda 1997; Horne and McDougall 2008; McDougall 1995).

### **2.2.2 Middle Archaic Period (circa 7000 to 4000 B.P.)**

A gradual transition from wet pluvial conditions to arid desert conditions marks the transition to the Middle Archaic Period. Middle Archaic sites are associated with the margins of pluvial lakes and now-extinct springs. Pinto-series projectile points are a distinctive artifact type of this period (Justice 2002), though other artifacts include leaf-shaped bifacial knives; split cobble choppers and scrapers; scraper-planes; and small milling slabs and manos. Most sites from this interval are small surface deposits of lithic artifacts, suggesting temporary and perhaps seasonal occupation by small groups of people.

### **2.2.3 Late Archaic Period (circa 4000 to 1500 B.P.)**

The Late Archaic Period was one of cultural intensification coinciding with the Little Pluvial, a period when increased moisture allowed for more extensive occupation of the region. Sedentism

likely increased during this period, with large occupation sites located adjacent to permanent water sources such as perennial springs and streams. Chronologically diagnostic projectile points of this period include Humboldt, Gypsum, and Elko-series dart points (Warren 1984), though Rose Spring arrow points appeared late within this period in the deserts. The mortar and pestle, used for processing acorns and hard seeds, also first appeared. A warming and drying trend began around 2100 B.P., leading to intensification of use of certain resources (Goldberg et al. 2001).

#### **2.2.4 Saratoga Springs Period (circa 1500 to 750 B.P.)**

Occupants of the region continued to adapt to the arid environment in the deserts (Warren 1984). Lake Cahuilla likely refilled the Coachella Valley around 1450 B.P., and was the focus of exploitation of fish and wetland resources. Occupation around Lake Perris and other large local water sources declined as these dried, however, and people became tethered to springs (Goldberg et al. 2001). Cultural trends continued from the Late Archaic Period, as Saratoga Springs projectile points, also associated with early use of the bow and arrow, appeared. The sparse assemblages found within the region, however, obscure the timing of local adaptation to bow and arrow (Goldberg et al. 2001). Shoshonean language speakers likely moved into southern California at this time. Brown and Buff Ware pottery first appeared on the lower Colorado River at about 1200 B.P. and started to diffuse across the California deserts by about 1100 B.P. (Moratto 1984). The warmer and drier Medieval Warm Period set in throughout the Southwest by about 1060 B.P. (Stine 1994; Warren 1984), and led to the withdrawal of Native American populations from marginal desert areas.

#### **2.2.5 Late Prehistoric Period (circa 750 to 400 B.P.)**

A period of lower temperatures and increased precipitation known as the Little Ice Age resulted in increased resource productivity in the region and subsequent population increase. Cottonwood Triangular points appear in inland assemblages and Obsidian Butte obsidian became much more common (Goldberg et al. 2001). Lake Cahuilla began to recede (Waters 1983) and the large Patayan populations occupying its shores moved westward to areas including the San Jacinto Plain (Wilke 1976). The final recession of Lake Cahuilla, which had occurred by approximately 400 B.P., resulted in a population shift away from the lakebed into the Peninsular Ranges to the west and the Colorado River regions to the east.

#### **2.2.6 Protohistoric Period (circa 400 to 150 B.P.)**

Sedentism intensified during the Protohistoric Period. Increased hunting with bow and arrow and widespread exploitation of acorns, other hard nuts, and berries (indicated by the abundance of mortars and pestles) provided reliable and storable food resources. Reliable food sources likely prompted the establishment of small, completely sedentary villages with resource catchment areas around them (True 1966, 1970). Ceramic technology first appeared in the region around 350 B.P. Cottonwood Triangular points were supplemented by Desert Side-notched points. This period ended in A.D. 1769, when Spanish settlement began in Upper California.

## **2.3 ETHNOGRAPHIC SETTING**

The Project is within an area where the traditional use territories of the Serrano, Cahuilla, and Gabrielino meet, just southeast of the present-day city of San Bernardino. All of these cultural groups spoke languages belonging to the Takic branch of the Shoshonean family, a part of the larger Uto-Aztecan language stock (Bean 1978:576; Geiger and Meighan 1976:19). More detailed ethnographic information is supplied by Bean and Saubel (1972), Bean and Smith (1978), Bean and Vane (2001), Harrington (1942), McCawley (1996), and Strong 1929. The reader is referred to these documents for specific information on Native American cultures of the southern San Bernardino County.

## **2.4 HISTORICAL SETTING**

This historic context is largely excerpted from *Historical Resources Evaluation Report for the Interstate 10 Corridor Project* (Chasteen 2015). This chapter describes the cultural setting beginning with the Euro-American settlement of San Bernardino County to provide a context for understanding the types, nature, and significance of the cultural resources identified within the Project study area.

### **2.4.1 San Bernardino County**

Euro-American settlement began in the early 1800s as persons seeking land and fortunes made their way west from the midwest and east coast of the United States or north from Mexico. The Catholic missionaries were a catalyst in the expansion of Euro-American influences in this region. A group of missionaries, Native Americans, and soldiers from the San Gabriel Mission named San Bernardino in honor of the feast day of San Bernardino of Sienna when they entered the valley on May 10, 1810. The Mission San Gabriel initially attempted to expand its influence in the San Bernardino Valley when Father Dumetz was sent to the valley in 1810 to establish the mission station known as Politana. An earthquake in 1812 followed by raids from neighboring Native American tribes caused a lull of interest in Politana, but in the 1830s Mission San Gabriel established the San Bernardino Asistencia in what is now the Mission District in eastern Loma Linda (California Historical Landmark No. 42). From 1822 through 1827, the Mission Fathers traveled the San Bernardino-Sonora Road, also known as the Emigrant or Mormon Trail (California Point of Historical Interest No. 96), which traversed Redlands, Old San Bernardino, Colton, and Agua Mansa, between Mission San Gabriel and the San Bernardino Asistencia. After Mexico achieved independence from Spain in 1821, the Mexican government seized ownership of church properties through the Secularization Act of 1833, and lands were redistributed as ranchos through a tribute system. This land redistribution by the Mexican government fostered the development of ranchos in Alta California.

The Asistencia was largely abandoned by the late 1830s. The Lugo family, under the leadership of Jose del Carmen Lugo, moved into the former Asistencia buildings in order to establish a colony. Slover Mountain, also known as El Cerrito Solo, was the natural landmark used for establishing the boundaries of the Lugos' land grant within the San Bernardino Rancho. What became known as San Bernardino County originally consisted of the following ranchos: Canon de Santa Ana, Jurupa and El Rincon, Cucamonga, Santa Ana del Chino, San Bernardino, and

Muscupiabe. The ranchos largely subsisted on cattle ranching and raising crops that were irrigated from the Mill Creek *Zanja* and other irrigation ditches.

In an effort to gain territory, the U.S. seized the territory of Texas from the Mexican government, launching the Mexican-American War. California was annexed by the U.S. in 1848 through the Treaty of Guadalupe Hidalgo, which ended the Mexican-American War, and entered the Union in 1850. The end of the war further paved the way for Euro-American settlement from the east.

Brothers Amasa Lyman and Charles Rich bought the San Bernardino Rancho from Jose and Maria Armenta Lugo in 1851 to establish a Mormon colony. Two such colonies were established on either side of the Santa Ana River. The Mormons who settled in the San Bernardino area raised livestock, planted crops, and established civic services such as a school and a post office. The Mormon settlers were recalled to Salt Lake City, Utah in 1858 by Brigham Young in an effort to create a Mormon stronghold. The majority of the Mormon settlers in San Bernardino returned to Salt Lake City; however, some remained. San Bernardino County was established on April 26, 1853, and ceded a portion of its territory to the formation of Riverside County in 1892.

Agriculture and livestock continued to be the chief industries in San Bernardino County, but were overshadowed by the citrus industry beginning in the 1870s. The first orange trees in San Bernardino were planted by Anson Van Leuven in 1857. Citrus growing, packing, and shipping quickly became the largest industry in southern California. Other industries included cattle ranching, growing sugar beets, and viticulture and enology. The burgeoning citrus industry led to a population boom and spurred the development of the transcontinental railroads.

Several companies were formed beginning in the mid- to late-1800s in an effort to develop San Bernardino County and southern California in general. Beginning in 1887, Major George H. Bonebrake and F. C. Howes formed the Semi-Tropic Land and Water Company, purchased 28,000 acres and the water rights to Lytle Creek, and laid out the townsites of Rosena (now known as Fontana), Rialto, Bloomington, and San Sevine. The Semi-Tropic Land and Water Company, though ultimately unsuccessful in its attempts, initiated much of the early residential and commercial development in San Bernardino County. After the Semi-Tropic Land and Water Company failed, largely due to a nationwide economic depression, several other development companies, such as the Fontana Farms Company, were formed to purchase the Semi-Tropic Land and Water Company holdings and also to further development of towns and industries throughout the county. The establishment of interstate and intercontinental rail lines brought an influx of people and money to southern California, which led to a real estate boom.

#### **2.4.2 Development of the Rail Lines**

The first railroad constructed in San Bernardino County was built by the Southern Pacific Railroad (SPRR). Construction of the SPRR began in Los Angeles, headed east, and eventually met with a line coming from the eastern seaboard, creating the first transcontinental railroad through San Bernardino County. The first station in San Bernardino County was built on land donated by the Slover Mountain Colony. The station was named for David D. Colton, a SPRR official. The name of the station lent itself to the town that grew around it. The Colton rail yards, constructed in 1875, were the chief source of economic development as the largest employer in Colton and are still the main rail yards for the SPRR, which later merged with the Union Pacific

Railroad (UPRR). The rail yards continue to be a viable source of income for the City of Colton, which is located less than 5 miles east of the Project area.

### **2.4.3 Early Irrigation Systems in San Bernardino Valley**

Irrigation of the San Bernardino Valley began in 1819 with the construction of the Mill Creek *Zanja*. The first sawmills were constructed in Mill Creek Canyon in the early 1850s by the Mormon settlers and were powered by man-made water conveyance systems. They also built a canal bringing water to their settlement from Warm Creek to power a gristmill. The Tenney, Lord and Hale, and Perdue ditches were early irrigation systems that laid the foundation for the San Bernardino Valley-wide irrigation system. Additional canals were built in the 1850s to divert water from the Santa Ana River for irrigation purposes. Later, flood control channels were constructed to minimize flooding in the basin and reduce damage to agricultural lands and residential and commercial properties, and avoid loss of life.

The San Bernardino Valley is fairly arid and substantial rainfall is seasonal. Natural water sources including the Santa River were not able to produce a sustainable source of water for large-scale farming.

### **2.4.4 Redlands**

Redlands was initially established through real estate speculation, much like several other ventures in San Bernardino during the mid- to late-1800s. The townsite was established by Frank E. Brown and Edward G. Judson in 1881 (Schuiling 1984) and was named after the rich red-colored soil found in the region. Brown and Judson organized the Redlands Water Company to provide water to the community (Schuiling 1984). With water guaranteed and the construction of a Santa Fe Railway branch line, Redlands and Lugonia, a neighboring community, merged to form one town (Schuiling 1984). The largest early industry was citrus packing and shipping (Federal Writers' Project 1939). The real estate boom associated with the development of the citrus industry in southern California also contributed to the early growth of Redlands.

The real estate boom drew Albert and Alfred Smiley, prominent early residents, to Redlands in the late 1880s. The Smileys purchased 200 acres in Redlands in 1889 with a view of the valley and the mountains where they constructed their homes and developed the area into Canyon Crest Park, later known as Smiley Heights (Schuiling 1984). They also planted over a thousand varieties of trees and shrubs in Smiley Heights, which quickly became a popular tourist destination. The Kite Route, an early rail line geared toward tourism, brought tourists and their dollars to Redlands to enjoy these gardens, and other services and entertainments provided by the City.

Through the establishment of tourist destinations and agricultural industries, Redlands experienced a population boom in the late 1800s. In 1888, the population was 900, and by 1900, the population had grown to 5,600 (Sanborn Map & Publishing Company Ltd. 1888; Sanborn-Perris Map Company Ltd. 1900). Redlands developed a thriving economy based on the citrus and timber industries and tourism. Other prominent local businesses were the Union Ice Company factory, the Brookside Winery, the Academy of Music, the Redlands Electric Light and Power Company, Redlands University, and hotels such as the Hotel Casa Loma and the

Windsor Hotel (Sanborn-Perris Map Company Ltd. 1900). Citrus was the primary agricultural product in Redlands, but Redlands was better known for its fine homes, parks, and the Redlands University. The city had 14 packinghouses in 1919 and was located on the Santa Fe Railway and SPRR lines. Redlands continues to thrive as a tourist draw for many of the same reasons listed above.

#### **2.4.5 Brown Subdivision of Williams Tract No. 1**

Frank Elwood Brown was a key figure in the development of the eastern San Bernardino Valley, the citrus industry in the valley, and the cities of Redlands and Moreno Valley. Brown brought the most crucial resource to the area—water.

Brown came to the San Bernardino valley in 1877, and settled in the small colony of Lugonia. Brown was a graduate of the Sheffield Scientific School at Yale University, and he brought big dreams with him to California (Gonzales 2006).

Upon arrival, Brown met Edward G. Judson in Lugonia and they went into the citrus business together in 1880. With their success as citrus growers and distributors, their vision grew. Together, they decided to develop a new agricultural colony in the area with a sustainable water source and system, the Red Lands Colony (Gonzales 2006).

Brown and Judson bought over 4,000 acres of land and the Red Lands Colony was incorporated in 1881. To provide water temporarily, they bought 50 shares of water from the owners of the South Fork ditch, which provided water to Lugonia drawn from the Santa Ana River. To transport the water to Red Lands, Brown and Judson constructed a 6-mile canal from the South Fork ditch to a new reservoir. Water reservoirs allowed water from the wet months to be harnessed and saved for the dry months (Gonzales 2006). As stated in a Scribner's Magazine article from 1890,

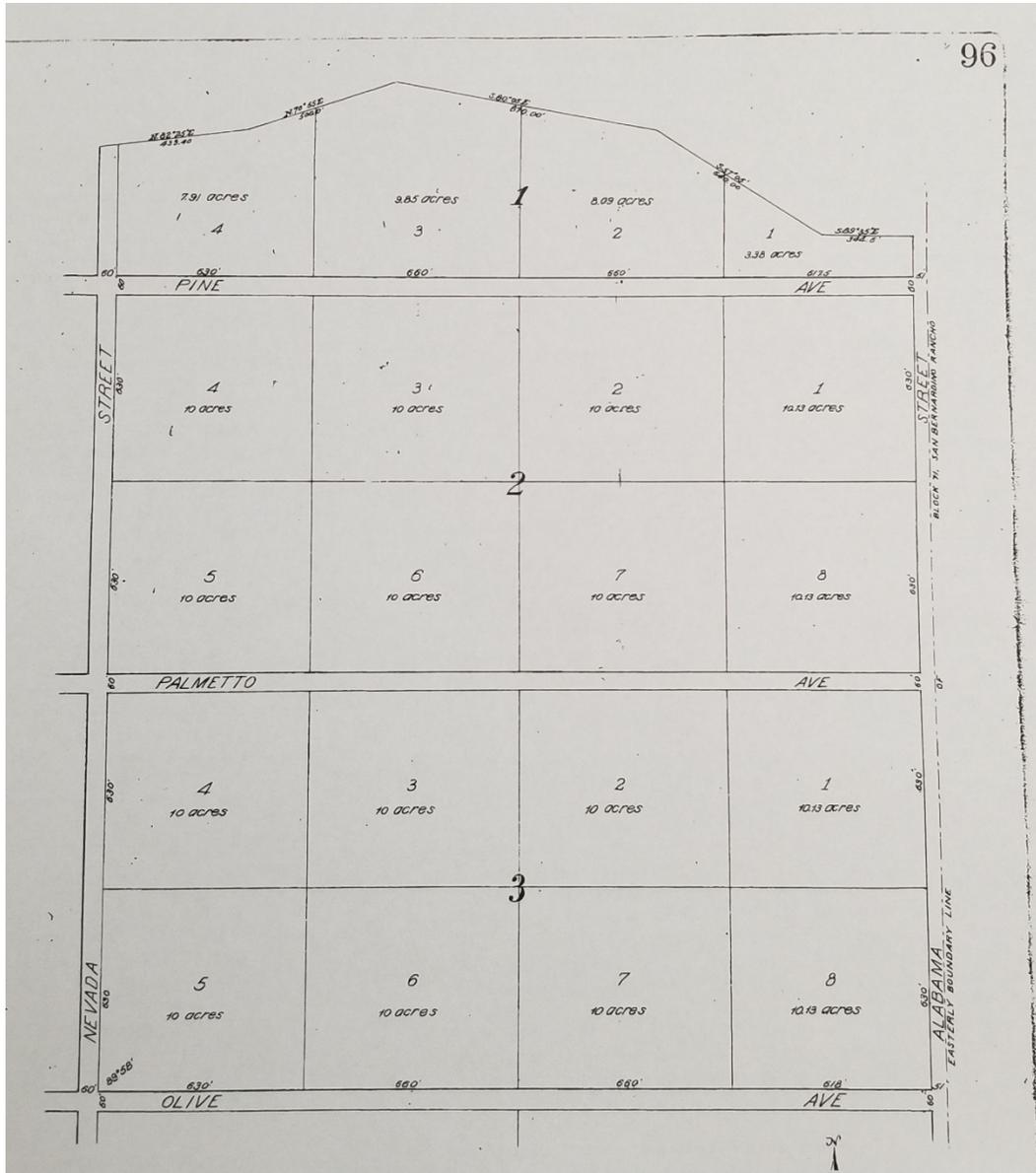
...the plan of water storage is to impound this water as it runs to waste in the season of flood and use it in the season of drought. Select the proper valleys for water-basins, close their outlets with dams, store great lakes of water when the mountain-snows melt, and then let it out slowly and at will through flumes and ditches to the lands below—this is the essence of the new idea [Gonzales 2006].

Brown embraced this idea and planned for the construction of a new water reservoir and dam in Bear Valley.

Brown and Judson's vision for a new water source and system was achieved in 1883 with the founding of the Bear Valley Land and Water Company, later known as the Bear Valley Irrigation Company. A new state of the art dam and channel was designed by Brown in 1884 and water from the Bear Valley reservoir made its way to the Red Lands Colony in 1885. Plentiful water attracted new settlers to the colony. The phenomenal population growth of the colony would have not been possible without the Bear Valley reservoir (Gonzales 2006).

Brown continued buying and developing agricultural land in the area, including a subdivision of the Williams Tract No. 1 located northwest of Redlands in 1893 shown in Figures 2-1 and 2-2 (Barmann 1893). The Williams Tract was founded by land proprietor Henry L. Williams in 1887

in a small community known then as Gladysta. The small community promoted its “piped water” in an 1887 newspaper advertisement (Figure 2-3).



**Figure 2-1** Map of Brown Subdivision of Williams Tract No. 1, 1893 (Courtesy of the San Bernardino County Historical Archives)

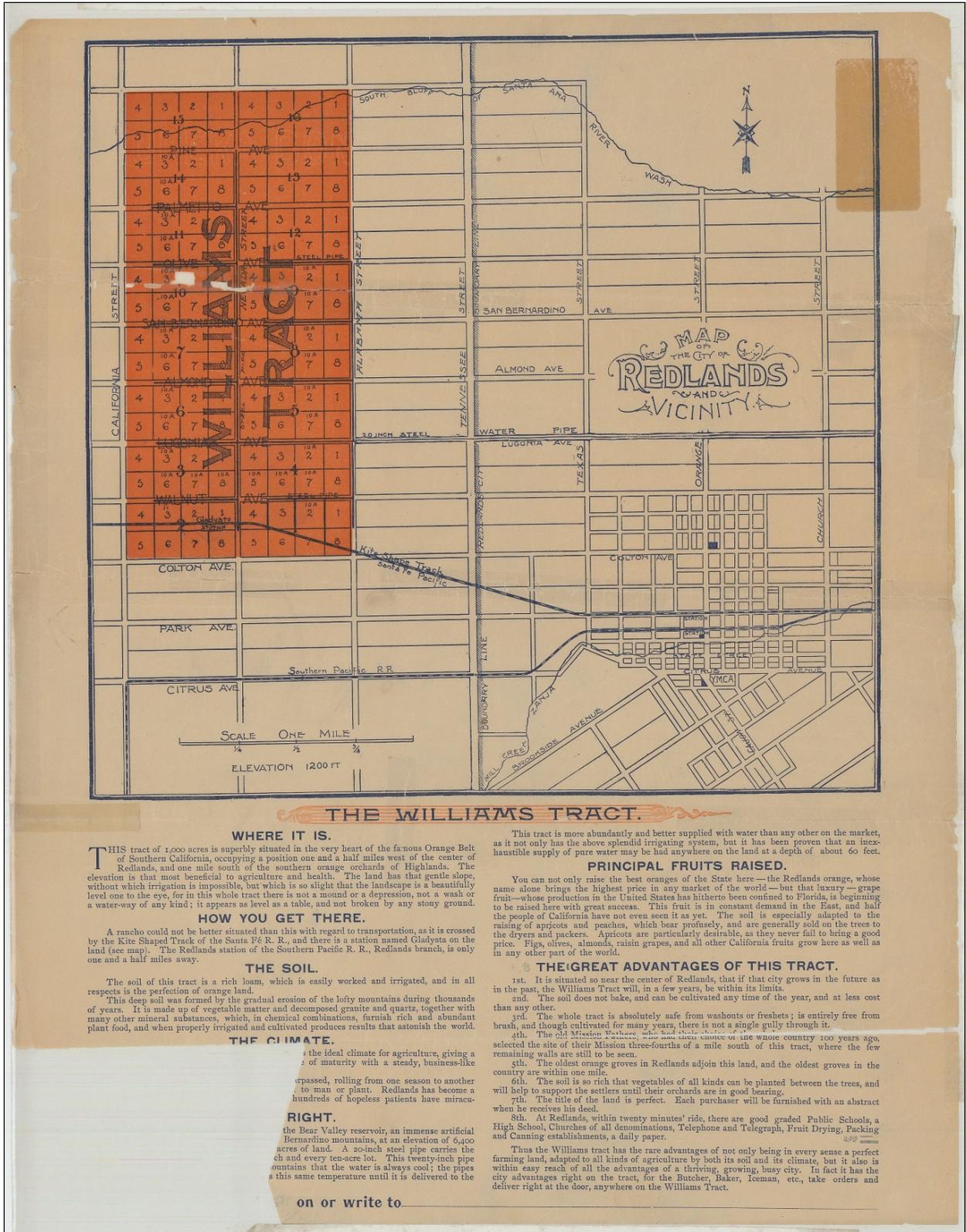


Figure 2-2 Williams Tract Map, circa 1890 (Courtesy of the A.K Smiley Public Library Heritage Room).

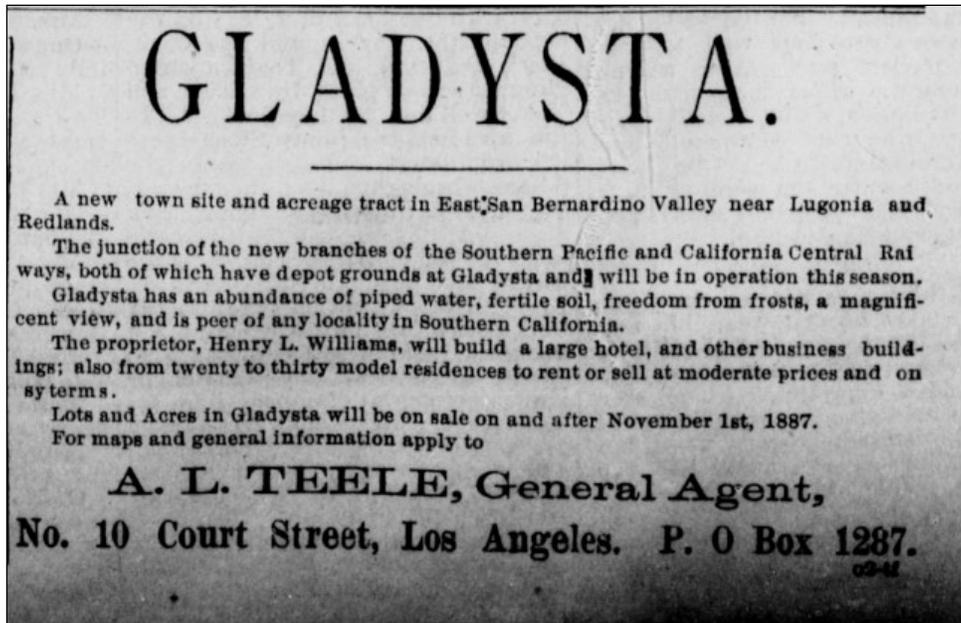


Figure 2-3 Gladysta Advertisement from the *Los Angeles Herald*, 1887 (Courtesy of the California Digital Newspaper Collection).

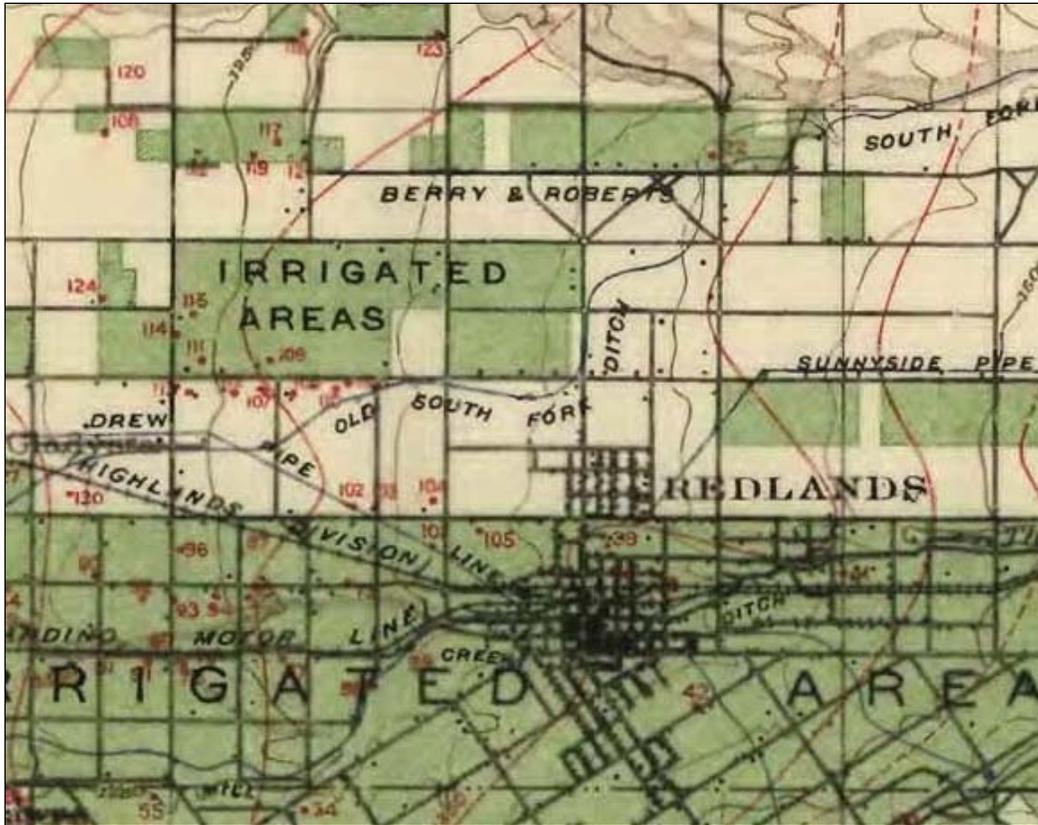
Citrus farming began in the Redlands area in the late nineteenth century and remained prominent until the late 1950s (California Department of Transportation 2007). A Southern Pacific electric railroad spur, south of San Bernardino Avenue, was developed in 1903 to service the citrus packing houses in the area including Sunkist and Crown Jewel. Smudge pot oil was also distributed via the train (Lancaster 2013). Gravity-fed irrigation was the standard practice in southern California citrus farming from the 1880s until the drip system was introduced in the 1970s (Sanka 2006).

Beginning in the 1880s, gravity-fed irrigation systems were constructed within citrus groves across San Bernardino Valley, similar to the system illustrated in Figure 2-4. The long and subtle slope of the valley from both north and south to the center made gravity-fed irrigation systems similar to the system illustrated in Figure 2-4 ideal for irrigation (California Department of Transportation et al. 2000). These systems distributed water using networks of underground cast-iron pipes, flow-control boxes, and gravity-fed irrigation flumes made of local rocks with cement mortar (California Department of Transportation et al. 2000). This state of the art water system for the area was highlighted on the Williams Tract promotional map shown in Figure 2-2 as well as the 1893 San Bernardino Irrigation Map shown in Figure 2-5. The Williams Tract Map declared that property owners could raise the best oranges in the state on the land and the oldest orange groves in Redlands were within one mile (William c. 1890). With an abundance of water, Brown's subdivision was perfect for the largest and fastest growing industry in the region, citrus farming.



**Figure 2-4 Irrigating Oranges, 1902 (Courtesy of the Los Angeles Public Library Photo Collection).**

The Project area includes three parcels within Block 1 Lots 1 and 2 and Block 2 Lots 1,2,3,6, and 7 of the Brown Subdivision of Williams Tract No. 1 (see Figures 2-1 and 2-2). Between 1895 and 1951, the following individuals, listed in no particular order, owned portions of the subject lots: Melvin R. Gay, Geo. W. Mead, B.W Cave, Belle Michaeltree, Frank E. Brown, 1<sup>st</sup> National Bank of Redlands, Hannah E. Irvin, W.K. Lee, C.H Park, Florence C. & Lester W. Finlay, J.D. Langford & Co., Will W. De Hart, Ruth McNair, Maude Armstrong, Gladys L. Pate, Charles S. Lombard, W.M. & Clara Henderson, Ellis G. Grace, B. Kennedy, Savings Bank, J. Richard Lane, Harry N. & Bertha F. Morse, Ino. W. Thayer, and J.H. Maggie Wilkes. All owners likely maintained citrus groves on their properties.



**Figure 2-5** Map of San Bernardino, Redlands, and Vicinity Showing Location of Irrigated Lands, 1893 (Courtesy of the Los Angeles Public Library Photo Collection).

Ownership of these lots changed throughout the twentieth century; however, the land use did not change. Historical aerial images show that the Project area contained an orchard from at least 1930 (Figure 2-6) and property tree values were documented beginning in 1923 (San Bernardino County Assessor Books; UCSB 2018). The 1954 edition of the USGS Redlands quad map shows the existence of citrus groves and farms within the Project area as well as on the surrounding properties. The citrus groves and farms were demolished around 2007 (NETR online 2018).



**Figure 2-6** Aerial photograph of the Project area, 1930 (Courtesy the UCSB Digital Aerial Photograph Library).

### 3

## CULTURAL RESOURCE LITERATURE AND RECORDS SEARCH

On June 28, 2018, prior to the field survey of the Project area, an archaeological literature and records search was conducted at the South Central Coastal Information Center (SCCIC) of the California Historical Resource Information System (CHRIS), housed at the California State University, Fullerton. The objective of this records search was to determine whether any prehistoric or historical cultural resources had been recorded previously within a Study Area encompassing a 1-mile radius of the Project area. The records search indicated that no less than 43 cultural resource studies have been conducted between 1977 and 2015 within the Study Area (Table 3–1). Five of these studies specifically involved a portion of the Project area (Table 3-1). Approximately 15 percent of the Project area had been surveyed previously as a result of this study.

**Table 3-1  
Previous Cultural Resource Studies in the Study Area**

SCCIC Document #	Date	Author(s)	Title
SB-00574	1977	Hammond, Stephen R. and Lois M. Webb	Cultural Resources Survey: Route 30 between Interstate Route 10 and Arden Avenue, San Bernardino County, California
SB-00931	1980	Smith, Gerald A.	Cultural Resources Assessment of the West Portion of Assessor's Parcel Number 292-061-11, Redlands Area
SB-01055	1980	Hammond, Stephen	Archaeological Survey Report: Route 30 between Third Street and Route 10 at Tennessee Street
SB-01783	1988	Hornbeck, David and Howard Botts	Seven Oaks Dam Project: Water Systems
SB-01808	1988	Hampson, R. Paul, Jerrel Sorensen, Susan K. Goldberg, Mark T. Swanson, and Jeanne E. Arnold	Cultural Resources Survey, Upper Santa Ana River, California
SB-02062	1990	Foster, John M.	Archival Research for Cultural Resources: Old Webster Quarry, SEIR, San Bernardino County
SB-02260	1991	Carmichael, David	Documentary Research and Field Reconnaissance Relating to Cultural Resources at Norton Air Force Base, California
SB-02486	1991	Hatheway, Roger G., John Romani, and Joanne Sanfilippo	An Architectural Determination Of Eligibility/Significance Report and an Archaeological Survey for the Marigold Business Park
SB-02587	1991	Schmuecker, Brian L.	Final Report: Inventory and Evaluation of World War II Structures at Norton Air Force Base in San Bernardino County, California
SB-02625	1992	Swope, Karen K and Michael K. Lerch	Cultural Resources Assessment of the Barton Center Of Redlands, Marigold Farms, City of Redlands, San Bernardino County, California

**Table 3-1  
Previous Cultural Resource Studies in the Study Area**

<b>SCCIC Document #</b>	<b>Date</b>	<b>Author(s)</b>	<b>Title</b>
SB-02792	1993	Mason, Roger D. and Jeanette A. McKenna	Cultural Resources Survey for the Cities Pavilion Project, Redlands, CA
SB-02853	1991	Foster, John M., James J. Schmidt, Carmen A. Weber, Gwendolyn R. Romani, and Roberta S. Greenwood	Cultural Resource Investigation: Inland Feeder Project, MWD of Southern CA
SB-03064	1995	White, Laurie and Robert S. White	An Archaeological Assessment of the 124+/- Acre Concept Plan 5 Citrus Plaza Project, Redlands, CA
SB-03141	1995	Love, Bruce	Alabama Street All-Weather Crossing
SB-03742	2001	Budinger, Fred	An Archaeological Assessment of the Proposed Verizon Buckeye Unmanned Cellular Telecommunication Site to be Located at 27630 W. Pioneer Ave, Redlands, CA
SB-03750	2000	Love, Bruce	Westside Landfill Expansion Project
SB-04047	2003	Dice, Michael	Phase I Cultural Resources Survey Results for Cingular Telecommunications Facility SB-230-02 (AT&T COLO) 27630 N. Pioneer Ave, Redlands, San Bernardino County, CA
SB-04048	2001	Love, Bruce	Identification and Evaluation of Historic Properties: City of Redlands Recycled Water Project in the City of Redlands, San Bernardino County, CA
SB-04058	2002	Dice, Michael	Revised Records Search Results for Sprint PCS Telecommunications Facility SB38Xc926B (Stow-Away Storage), 1519 W. Lugonia, Redlands, San Bernardino County, CA.
SB-04104	2004	McKenna, Jeanette A.	An Architectural Review of Standing Structures Located within the Proposed Redlands Unified School District's Proposed New School Site, Redlands, San Bernardino County, CA
SB-04592	2005	Tang, Bai "Tom", Michael Hogan, Casey Tibbet, and John J. Eddy	Historical/Archaeological Resources Survey Report: ABT-Haskell Company Composting Plan Site near the City of Redlands, San Bernardino County, California
SB-04594	2005	Billat, Lorna	Hwy 30/CA-8817A.
SB-04596	2004	McKenna, Jeanette	A Phase I Cultural Resources Investigation of the Oakmont Industrial Group Project Area, approximately 14.3 Acres in the Redlands Area of San Bernardino County, California
SB-04600	2004	Dice, Michael	Phase I Cultural Resources Survey of a 73.45 Acre Property in Unincorporated San Bernardino County, APN: 0292-052-01, -03, -04, -06, -08, -10, -11, -12, -16 near Nevada Street/Almond Avenue, Section 13 of Township 1 North Range 6 West, County of San Bernardino, California.
SB-04809	2006	W & S Consultants	Phase I Archaeological Survey of the Kaiser Redlands Mob Study Area, Redlands, San Bernardino County, California

**Table 3-1  
Previous Cultural Resource Studies in the Study Area**

SCCIC Document #	Date	Author(s)	Title
SB-04811	2006	McKenna, Jeanette A.	Supplemental Research and Documentation of 1042 Pioneer Ave. and 1074 Pioneer Ave., Redlands, San Bernardino Co., California
SB-04831	2005	Brunzell, David and Curt Duke	Cultural Resource Assessment: Upper Santa Ana River Wash Land Management and Habitat Conservation Plan, San Bernardino County, California
SB-05164 <sup>a</sup>	2005	White, Robert and Laura White	A Cultural Resources Assessment of a 17.86 Acre Parcel Located Northeast of the Intersection of Pioneer Avenue and Nevada Street, Near Redlands, San Bernardino County
SB-05165	2005	Tang, Bai, Michael Hogan, Mariam Dahdul, Casey Tibbet, Daniel Ballester, and Terri Jacqueman	Historical/Archaeological Resources Survey Report ABT-Haskell Project 2130 Nevada Street, near the City of Redlands, San Bernardino County, California
SB-05166	2006	Tang, Bai and Michael Hogan	Historical/Archaeological Resources Survey Report Redlands Commons Project Assessor's Parcel Nos. 0167-091-02, -04, -04, and -08 City of Redlands, San Bernardino County, California
SB-05167	2006	Hogan, Michael	Historical/Archaeological Resources Survey: Trojan Groves, Assessor's Parcel Nos. 0167-091-09 through -12, City of Redlands, San Bernardino County, California.
SB-05788	2006	Sanka, Jennifer M.	Phase I Cultural Resource Assessment and Paleontological Records Review, Redlands Commerce Center Project, Redlands, San Bernardino County, California.
SB-05856	2008	Sanka, Jennifer	Phase I Cultural Resources Assessment and Paleontological Records Review: Almond Plaza Project, Redlands, San Bernardino County, California.
SB-05857	2008	Sanka, Jennifer M.	Phase I Cultural Resource Assessment and Paleontological Records Review, Holy Name of Jesus Catholic Church Project, Redlands, San Bernardino County, California.
SB-07044	2004	Goodwin, Riordan and Judith Marvin	Cultural Resources Assessment: House Land Development Parcels APNs: 0292-055-01 and 0292-055-05 through -10, Vicinity of Redlands, San Bernardino County, California.
SB-07463	2009	Tang, Bai "Tom"	Cultural Resources Records Search, San Bernardino International Airport, City of San Bernardino, California
SB-07827	2014	McKenna, Jeanette A.	A Phase I Cultural Resources Investigation for the Crossings at Redlands Project Area, Approximately 10 Acres of Land in the Redlands Area of San Bernardino County, California.
SB-07955	2013	McLean, Roderic, Natalie Brodie, Jacqueline Hall, Shannon Carmack, Phil Fulton, Ingri Quon, Erin Martinelli, Richard	Cultural Resources Assessment and Class III Inventory Volume I. West of Devers Project, San Bernardino and Riverside Counties, California

**Table 3-1  
Previous Cultural Resource Studies in the Study Area**

SCCIC Document #	Date	Author(s)	Title
		Erickson, and Jay Michalsky	
SB-07959	1998	Hatheway, Roger G.	Determination of Eligibility for 50 Buildings in the City of San Bernardino
SB-07963	2015	DeCarlo, Matthew M. and Diane L. Winslow	Engineering Refinements Survey and Recommendations of Eligibility for Cultural Resources with Southern California Edison Company's West of Devers Upgrade Project, Riverside and San Bernardino Counties, California
SB-07964	2015	DeCarlo, Matthew M. and Diane L. Winslow	Cultural Resources Impact Assessment and Evaluation Status Report for Southern California Edison Company's West of Devers Upgrade Project, Riverside and San Bernardino Counties, California
SB-08038	2013	Brunzell, David	Cultural Resources Assessment Hillwood Commerce Center Project, City of Redlands, San Bernardino County, California
SB-08097	2014	Long, Shelly	Archaeological Survey Report State Route 210 Mixed Flow Lane Addition from Highland Avenue to San Bernardino Avenue, Cities of Highland, San Bernardino, Redlands and Portions of San Bernardino County, California

a- Studies that involved portions of the Project area

These studies resulted in the identification and documentation of 24 cultural resources within the Study Area: 16 historical archaeological sites (primarily farm and agricultural system remnants and a refuse scatter), 1 isolated artifact (historical curb fragments), and 7 built-environment resources (4 residences, 1 landscape, 1 road alignment [California Street], and the San Bernardino County Museum) (Table 3–2). The San Bernardino County Museum has been designated California Point of Historical Interest (No. 1). None of the 24 previously documented cultural resources are located within the current Project area.

**Table 3-2  
Cultural Resources in the Study Area**

Primary	Trinomial	Age	Description
36-006095	CA-SBR-6095H	Historic period	Refuse Scatter
36-007139	CA-SBR-7139H	Historic period	Marigold Farms Dairy. Destroyed.
36-007765	CA-SBR-7765H	Historic period	Agricultural site
36-007766	CA-SBR-7766H	Historic period	Agricultural and residential site
36-007767	CA-SBR-7767H	Historic period	Agricultural and residential site
36-008135	CA-SBR-8135H	Historic period	Series of masonry irrigation flumes
36-008136	CA-SBR-8136H	Historic period	Early 20 <sup>th</sup> -century farm complex
36-008137	CA-SBR-8137H	Historic period	Early 20 <sup>th</sup> -century farm complex

**Table 3-2  
Cultural Resources in the Study Area**

<b>Primary</b>	<b>Trinomial</b>	<b>Age</b>	<b>Description</b>
36-009990	CA-SBR-9990H	Historic period	Structural pad and well head
36-009991	CA-SBR-9991H	Built environment	Landscaping; Mexican Fan Palms lining various segment of streets
36-009992	CA-SBR-9992H	Historic period	Four large metal smudge oil tanks
36-012468	CA-SBR-12260H	Historic period	Concrete and stone irrigation system
36-012531	—	Built environment	Victorian/Craftsman-style residence built in 1915
36-012532	—	Built environment	Victorian/Craftsman-style residence built between 1905 and 1915
36-012852	CA-SBR-12386H	Historic period	Series of masonry irrigaiton flumes and stand-pipe irrigation system
36-013514	—	Built environment	Craftsman-style residence built in 1901
36-013622	—	Historic period	Isolated curb fragments
36-013775	CA-SBR-12663H	Historic period	Remnants of a stand-pipe water control system, including a concrete irrigation flume, standpipes, a well, and a sparse refuse scatter.
36-013776	—	Historic period	Concrete and brick weir box
36-013783	CA-SBR-12669H	Historic period	Remnants of a stand-pipe water control system, including a concrete irrigation flume, standpipes, a well, and a sparse refuse scatter.
36-015135	—	Built environment	San Bernardino County Museum; educational building
36-024295	—	Built environment	Craftsman-style farmhouse built in 1922. Destroyed.
36-024296	—	Historic period	Remnant of a linear gravity-flow concrete standpipe irrigation system, possibly part of a much larger system
36-027670	CA-SBR-17211H	Built environment	California Street alignment

Other sources consulted during the archaeological literature and records search include the *Office of Historic Preservation Archaeological Determinations of Eligibility (ADOE)* and the *Office of Historic Preservation Directory of Properties in the Historic Property Data File*. These sources identified one property (P-36-013514) within the Study Area that is listed on the *Office of Historic Preservation Directory of Properties in the Historic Property Data File*. The resource, a Craftsman-style residence built in 1901, was identified during a reconnaissance survey and was recommended ineligible for inclusion on the National Register of Historic Places.

Æ consulted a series of archival maps to assess historical land use and development in the Study Area. These USGS maps include the Redlands (1899, 1901, and 1954) 15' USGS Quadrangle maps and Redlands (1954, 1967, 1973, and 1975) 7.5' USGS Quadrangle maps. In addition, aerial photographs from 1930, 1938, 1959, 1966, and 1968 were examined for extant structures or features within the Project area that may be 45 years of age or older (UCSB 2018; Aerial NETR online 2018). No current extant structures or features appear within the Project area on any of the historical maps or photographs; however, historical aerial images show that the Project area contained an orchard and two residential properties between 1930 and 2009 (NETR online 2018; UCSB 2018).

## 4

### NATIVE AMERICAN COMMUNICATION

Æ contacted the NAHC on June 14, 2017, for a review of the SLF, to determine if any known properties of importance to Native Americans (e.g., traditional use or gathering areas, places of religious or sacred activity) are present within or adjacent to the Project area. The NAHC responded on June 15, 2018, stating that the SLF search was completed with negative results. The NAHC requested that local Native American individuals and organizations be contacted to elicit information and/or concerns regarding cultural resource issues related to the proposed Project. A letter describing the Project and asking these individuals and organizations for their input was sent via United States Postal Service (USPS) and electronic mail on July 10, 2018. An example of the letter sent, the list of contacts, and responses received are included in Appendix A. A second attempt at correspondence was made on July 30, 2018.

Individuals/organizations contacted at the request of the NAHC include:

- Patricia Garcia-Plotkin, Director for the Agua Caliente Band of Cahuilla Indians (ACBCI) Tribal Historic Preservation Office
- Amanda Vance, Chairperson of the Augustine Band of Cahuilla Indians
- Judy Stapp, Director of Cultural Affairs for the Cabazon Band of Mission Indians
- Daniel Salgado, Chairperson of the Cahuilla Band of Indians
- John Perada, Environmental Director for the Los Coyotes Band of Mission Indians
- Denisa Torres, Cultural Resources Manager for the Morongo Band of Mission Indians
- Temet Aguilar, Chairperson of the Pauma Band of Luiseño Indians – Pauma & Yuima Reservation
- John Gomez, Environmental Coordinator for the Ramona Band of Cahuilla Mission Indians
- Jessica Mauck, Cultural Resources Analyst for the San Manuel Band of Mission Indians (SMBMI)
- Steven Estrada, Chairperson of the Santa Rosa Band of Mission Indians
- Goldie Walker, Chairperson of the Serrano Nation of Mission Indians
- Donna Yocum, Chairperson of the San Fernando Band of Mission Indians
- Joseph Ontiveros, Cultural Resource Department of the Soboba Band of Luiseño Indians
- Michael Mirelez, Cultural Resource Coordinator for the Torres-Martinez Desert Cahuilla Indians

As of July 30, 2018, five responses have been received. The San Manuel Band of Mission Indians noted that the Project is located in close proximity to the Santa Ana River, which is a Tribal Cultural Resource (TRC). SMBMI recommended Phase I presence/absence testing within the Project area, assuming there are in situ Holocene layers beneath the existing disturbance that resulted from agriculture. Additionally, SMBMI will request a copy of the completed cultural resource report from the County and provide Project recommendations directly to the County.

The Cabazon Band of Mission Indians stated that the Project is located outside of the Tribe's current reservation boundaries. The Tribe has no specific archival information indicating that the Project may be a sacred/religious site or other site of Native American traditional cultural value. The ACBCI noted that the Project area is within the Tribe's Traditional Use Area; however, the Tribe defers all further consultation efforts to the SMBMI. Cahuilla Band of Indians noted that the Project area is located within the Tribe's Traditional Use Area; therefore the Tribe requested to be notified of all updates and or changes with the Project moving forward. The Morongo Band of Mission Indians noted the Project area is located within the Tribe's Traditional Use Area and requested a thorough records search be conducted by contacting one of the CHRIS Archaeological Information Centers and a copy of the search results be provided to the tribe. Morongo also requested that a copy of the Phase I study be provided to the tribe as soon as it can be made available. A table of responses summarizing consultation with Native American groups and/or individuals is in Appendix A.

## 5 PHASE I CULTURAL RESOURCE SURVEY

### 5.1 SURVEY METHODS

Æ Staff Archaeologist Evan Mills performed an intensive pedestrian archaeological survey of the Project area on July 5 and 6, 2018. The area was inspected by walking a set of survey transects across the Project area spaced 10 to 15 meters (33–50 feet) apart.

The Project area is relatively level and covered in sparse vegetation (Figure 5-1). Sediments consist of a silty-sand alluvium with a low (10 percent) gravel content and few cobbles. The central western portion of the Project area is currently an active farm field and was not surveyed during the current effort (Figure 5-2).



**Figure 5-1** Overview of the Project area, view to the southwest.



**Figure 5-2 Cultural resources in the Project area.**

## 5.2 SURVEY RESULTS

The Project is within a former citrus grove that was cleared of trees around 2007. Soils within the Project area are completely disturbed from plowing associated with previous and current agricultural activity and operation of heavy equipment during tree removal. Other disturbances noted during the survey include scattered modern refuse and debris from homeless encampments present at the northern Project boundary. Vegetation consisted of seasonal grasses and eucalyptus trees. Ground surface visibility was generally excellent (90 percent). A few modern irrigation features are extant on the subject properties including PVC pipes, concrete standpipes, and a concrete pad with protruding steel pipe. These features were not documented as they were not over 50 years of age. Two cultural resources, both remnants of a historic-period water conveyance system, were identified during the survey and are discussed below (see Figure 5-2).

### 5.2.1 Irrigation flume (Æ-3895-1H)

Æ-3895-1H is an irrigation flume located between two parcels, Assessor's Parcel Numbers (APNs) 029204143 and 029204148, on a north south line, west of Alabama Street. The flume is approximately 2,106 feet long and is composed of split local cobbles set in concrete mortar. The flume is overgrown with natural grasses and has been inactive for a long period of time. Portions of the flume have been damaged in several locations but overall its alignment is intact (see Figure 5-2; Figure 5-3).



**Figure 5-3** Overview of water flume (Æ-3895-1H), view to the north.

### 5.2.2 Concrete Weir (Æ-3895-2H)

Æ-3895-2H is a weir located on APN 029204147 in the southwestern portion of the Project area near Palmetto Avenue. The weir is built of concrete and mortared concrete blocks and brick, and features a hand crank metal release gate (see Figure 5-2; Figure 5-4). Portions of the weir have been damaged, but overall it is intact. On the north end of the weir, portions of the cast-iron pipe feeding into the weir have been patched with rubber and steel clamps, revealing that a portion of the system may still be active.



Figure 5-4 Overview of weir (Æ-3895-2H) view looking south.

## 6 SIGNIFICANCE EVALUATION

As part of this study, Æ evaluated the significance of sites Æ-3895-1H and Æ-3895-2H, both remnants of a historic-period water conveyance system, to determine its significance and eligibility for inclusion in the CRHR. The remaining features of the system consist of a local stone and concrete mortar flume (Æ-3895-1H) and a concrete block, concrete, and brick weir with a hand crank metal release gate (Æ-3895-2H). Æ conducted archival research on the associated parcels (APNs 029204143, 029204148, 029204147) and local irrigation systems to define ownership and development history and determine if the water conveyance system could be associated with a particular event, person of importance, or building style. The standpipes, PVC pipe fragments, and concrete pad with steel pipe within the Project area are from a more recent drip system introduced in the 1970s. These elements were not evaluated in this study because they are less than 50 years old.

The flume and weir are directly associated with the Redlands citrus industry. This site is similar to several other sites recorded nearby, as many irrigation flumes, standpipes, and weirs have been reported in the vicinity. These resources were components of a larger gravity-fed irrigation system for the citrus groves that were previously extant within the subject parcels and within the general vicinity.

Citrus production began in the Redlands area in the late nineteenth century and remained prominent until the late 1950s (City of Redlands 2018). While ownership of the subject property changed throughout the twentieth century, the land use did not change. This property was developed as an agricultural lot in the late 1880s as a part of Williams Tract No.1. In 1893, Frank Brown subdivided the Williams Tract No. 1, and these properties became Lots within Block 1 and 2 of the Brown Subdivision.

Frank Brown was the founder and head engineer of the Bear Valley Land and Water Company. He installed gravity-fed irrigation systems on his lots to service the growing citrus industry. The water for this system came from the Bear Valley Land and Water Company's new state of the art reservoir in Bear Valley, now known as Big Bear Lake. This sustainable water source brought growth and prosperity to the Redlands region, resulting in a prosperous citrus industry, and gravity-fed irrigation became the standard practice in southern California orchard production until the drip system was introduced in the 1970s (Gustafson 1980; Taylor 2006).

Several land tracts in the area were developed in the 1890s due to this sustainable water source. These land tracts, including the Williams Tract, became extensive citrus groves owned by local families and entrepreneurs. Historical aerial images confirmed that the Project area contained an orchard by 1930 (UCSB 2018). The 1954 edition of the USGS Redlands topographic quadrangle map shows a citrus grove on the property as well as on the surrounding properties. Thus, it appears this property was a citrus grove from the 1890s until circa 2007, when the trees were removed, explaining why the historic gravity-fed irrigation system is still extant on the property.

Æ-3895-1H (flume) and Æ-3895-2H (weir) were constructed circa 1893, within the Frank Brown subdivision of Williams Tract No. 1. These components of a gravity-fed irrigation system have a direct association with irrigation practices in San Bernardino Valley and development of the citrus industry in Redlands, events that were important in local and regional history. The flume and weir are significant under CRHR Criterion 1, with the period of significance from 1893, when the Brown Subdivision was created, until 1950, the end of the citrus industry boom.

Ownership of the properties changed throughout the late nineteenth and twentieth centuries (see timeline in Section 2.4.5). Past owners include local families, entrepreneurs, and banks who wanted to make a profit in the lucrative citrus industry. The most historically significant property owner was Frank Brown; however, other historic resources in the region, including the old Bear Valley Dam, listed as a California Historical Landmark, better convey Brown's historical contribution to the region. With no direct association with any other important historical persons, the site is not considered significant under CRHR Criterion 2.

The flume and weir embody the distinctive design and construction characteristics of a gravity-fed irrigation flume and weir from the turn of the twentieth century, and are significant under CRHR Criterion 3.

This gravity-flow irrigation flume and weir does not appear to meet CRHR Criterion 4 individually for their potential to provide information important in history or prehistory. However, the larger Bear Valley Land and Water Company system, the Williams Tract irrigation system, and adjoining orchards, with which this flume is associated, could potentially be eligible under Criterion 4. The extent of these systems is not fully known and little documentation on the layout of the systems was found during current historic research. Therefore, further investigation and study of the remaining physical elements of these systems have the potential to yield new information about the systems and their contribution to the historic Redlands Citrus industry.

The flume and weir may be a contributing element of a larger historic citrus district in Redlands. Several gravity-fed irrigation systems, oil tanks, citrus packing houses, and electrical railways have been documented within a 1-mile radius of the Project (Appendix C). Additional research and studies are needed to investigate the extent, significance, and integrity of this potential historic district.

## 7

### MANAGEMENT RECOMMENDATIONS

The cultural resource assessment identified two historical resources (Æ-3895-1H and Æ-3895-2H) within the Project area.

Geologic data indicate that the surface of the Project area has been stable for the last several thousand years and that any extant archaeological deposits post-dating the middle Holocene would likely be found near the modern ground surface. Late Holocene flood events, which have inundated much of the Redlands and San Bernardino areas (Springer 2007), may have deposited thin layers of mud across the Project area. However, these deposits have likely been altered by development of the citrus grove in the twentieth century. As such, any significant archaeological remains within the Project area dating to the latter half of the Holocene would likely be within the plow zone and would be observed during the Phase I survey.

The sensitivity for older archaeological deposits within deeper subsurface contexts is low. While the sediments underlying the Project area were deposited during the first half of the Holocene, they consist of stream deposits related to the Santa Ana River. These types of deposits are part of a high-energy system subject to intermittent periods of erosion and deposition. Archaeological remains in these settings, if present, are often entrained into the flow and reworked into secondary contexts. As such, the likelihood of finding intact buried resources within the Project area is very low.

In addition to the above buried site sensitivity analysis, the terrain throughout the entire Project area has been extensively disturbed by mechanical tree removal. It is unlikely that buried archaeological remains are present; therefore, no further archaeological management of the Project area is recommended.

It should be noted, however, that the San Manuel Band of Mission Indians recommended Phase I presence/absence testing within the Project area, assuming there are in situ Holocene layers beneath the existing disturbance that resulted from agriculture. The Cahuilla Band of Indians noted that the Project area is located within the Tribe's Traditional Use Area; therefore the Tribe requested to be notified of all updates and or changes with the Project moving forward.

An evaluation of the two historical resources suggests that they are eligible for listing on the CRHR under Criteria 1 and 3. These resources may also be a contributing element to a larger citrus historic district. A number of the 24 previously recorded cultural resources within a 1-mile radius are associated with the production of citrus. Therefore, it is recommended that Æ-3895-1H and Æ-3895-2H be avoided during Project construction and preserved in place. If avoidance is not feasible, then mitigation measures are necessary to reduce Project impacts to a less-than-significant level under CEQA. Proposed mitigation for these features is to continue research on the citrus industry and prepare documentation in the form of a district record to be filed at the SCCIC.

In the event potentially significant archaeological materials are encountered during construction, all work must be halted in the vicinity of the discovery until a qualified archaeologist can visit the site of discovery and assess the significance of the find. If significant archaeological remains are encountered, the impacts of the Project must be mitigated appropriately. Any such discoveries, and subsequent evaluation and treatment, should be documented in a cultural resource monitoring and treatment report, which should be submitted to the SCCIC for archival purposes. Additionally, Health and Safety Code Section 7050.5, CEQA Guidelines Section 15064.5(e), and Public Resources Code Section 5097.98 mandate the process to be followed in the unlikely event of an accidental discovery of human remains in a location other than a dedicated cemetery.

Finally, if the Project is expanded to include areas not covered by this survey or other recent cultural resource studies, additional cultural resource studies may be required.

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## **APPENDIX A**

### **Native American Communication**

**LIST OF NATIVE AMERICAN CONTACTS AND RECORD OF RESPONSES**

<b>Name</b>	<b>Date &amp; Time of Calls</b>	<b>Responses</b>
Patricia Garcia-Plotkin Director Tribal Historic Preservation Office Agua Caliente Band of Cahuilla Indians	July 10, 2018  Letter dated July 10, 2018	Scoping letter sent via email.  Received letter from Ms. Katie Croft, Cultural Resource Manager for the ACBCI. The Tribe noted that the Project area is within the Tribe's Traditional Use Area; however, the Tribe defers all further consultation efforts to the SMBMI.
Amanda Vance Chairperson Augustine Band of Cahuilla Indians	July 10, 2018  July 30, 2018	Scoping letter sent via email.  E-mailed follow-up effort for correspondence. No response received.
Judy Stapp Director of Cultural Affairs Cabazon Band of Mission Indians	July 10, 2018  Letter dated July 10, 2018	Scoping letter sent via email.  Received e-mail response from Ms. Stapp. Ms. Stapp stated that the Project is located outside of the Tribe's Traditional Use area.
Daniel Salgado Chairperson Cahuilla Band of Indians	July 10, 2018  Letter dated July 17, 2018	Scoping letter sent via email.  Received letter from Mr. Bobby Ray Esparaza, Cultural Coordinator for the Cahuilla Band of Indians. The Tribe noted that the Project area is within the Tribe's Traditional Use Area, therefore the tribe requested to be notified of all updates and or changes with the Project moving forward as they have interest in this project.
John Perada Environmental Director Los Coyotes Band of Mission Indians	July 10, 2018  July 30, 2018	Scoping letter sent via USPS.  Follow-up call effort for correspondence. No response received.

Name	Date & Time of Calls	Responses
Denisa Torres Cultural Resource Manager Morongo Band of Mission Indians	July 10, 2018  Letter dated July 19 , 2018	Scoping letter sent via email.  Received email response from the Tribal Historic Preservation Office. The Tribe noted that the proposed Project is located within Tribe’s aboriginal territory or in an area considered to be a traditional use area or one in which the Tribe has cultural ties. In order to further evaluate the project for potential impacts to tribal cultural resources. The Tribe requested a thorough records search be conducted by contacting one of the California Historical Resources Information System (CHRIS) Archaeological Information Centers and a copy of the search results be provided to the tribe. The Tribe also requested that a Tribal monitor participation during the initial pedestrian field survey of the Phase I Study of the project and a copy of the results of that study. In the event the pedestrian survey has already been conducted, MBMI requests a copy of the Phase I study be provided to the tribe as soon as it can be made available.
Temet Aguilar Chairperson Pauma Band of Luiseño Indians – Pauma & Yuima Reservation	July 10, 2018  July 30, 2018	Scoping letter sent via e-mail  E-mailed follow-up effort for correspondence. No response received.
John Gomez Environmental Coordinator Ramona Band of Cahuilla Indians	July 10, 2018  July 30, 2018	Scoping letter sent via email.  E-mailed follow-up effort for correspondence. No response received.
Donna Yocum Chairperson San Fernando Band of Mission Indians	July 11, 2018  July 30, 2018	Scoping letter sent via email.  E-mailed follow-up effort for correspondence. No response received.

Name	Date & Time of Calls	Responses
Jessica Mauck Cultural Resources Analyst San Manuel Band of Mission Indians (SMBMI)	July 10, 2018  E-mail dated July 30, 2018	Scoping letter sent via email.  Received email response from Ms. Mauck. The Tribe noted that the proposed Project location is in proximity to the Santa Ana River, which is a TCR for SMBMI, and the potential for subsurface deposits. The recommendation from SMBMI for this project is the conduct Phase I presence/absence testing for this project area, assuming there are in situ Holocene layers beneath the existing disturbance that resulted from agriculture. SMBMI recommended reaching back out to the NAHC and clarifying whether or not, per their records, this project falls within an existing SLF for SMBMI, and simply making a note that Tribe may have concerns and will consult with the Lead Agency. After they review the cultural report, SMBMI will consult with the County regarding tribal recommendations.
Steven Estrada Chairperson Santa Rosa Band of Mission Indians	July 10, 2018  July 30, 2018	Scoping letter sent via email.  E-mailed follow-up effort for correspondence. No response received.
Goldie Walker Chairperson Serrano Nation of Mission Indians	July 10, 2018  July 30, 2018	Scoping letter sent via USPS.  Follow-up call effort for correspondence. The Phone number provided on NAHC list has been disconnected. Unable to leave a message.
Joseph Ontiveros Cultural Resource Department Soboba Band of Luiseño Indians	July 10, 2018  July 30, 2018	Scoping letter sent via email.  E-mailed follow-up effort for correspondence. No response received.
Michael Mirelez Cultural Resource Coordinator Torres-Martinez Desert Cahuilla Indians	July 10, 2018  July 30, 2018	Scoping letter sent via email.  E-mailed follow-up effort for correspondence. No response received.

# Sacred Lands File & Native American Contacts List Request

## Native American Heritage Commission

1550 Harbor Boulevard, Suite 100

West Sacramento, CA 95691

916-373-3710

916-657-5390 – Fax

[nahc@nahc.ca.gov](mailto:nahc@nahc.ca.gov)

*Information Below is Required for a Sacred Lands File Search*

**Date:** June 14, 2018

**Project:** Duke- Alabama Street and Palmetto Avenue Project AE# 3895

**County:** San Bernardino

**USGS Quadrangle Name:** Redlands

**Township:** 1S                      **Range:** 3W                      **Section(s):** 8

**Company/Firm/Agency:** Applied EarthWorks, Inc.

**Contact Person:** Kholood Abdo Hintzman

**Street Address:** 3550 East Florida Avenue, Suite H

**City:** Hemet                      **Zip:** 92544

**Phone:** (951) 766-2000

**Fax:** (951) 766-0020

**Email:** kahintzman@appliedearthworks.com

### Project Description:

Phase I archaeological assessment of approximately 55 acres for proposed development on the northwest corner of Alabama Street and Palmetto Ave, San Bernardino County for California Environmental Quality Act compliance

**NATIVE AMERICAN HERITAGE COMMISSION**

Cultural and Environmental Department  
1550 Harbor Blvd., Suite 100  
West Sacramento, CA 95691  
(916) 373-3710



June 15, 2018

Kholood Abdo Hintzman  
Applied EarthWorks, Inc.

Sent by E-mail: kahintzman@appliedearthworks.com

RE: Proposed Duke- Alabama Street and Palmetto Avenue (AE# 3895) Project, near the City of Redlands; Redlands USGS Quadrangle, San Bernardino County, California

Dear Mr. Hintzman:

A record search of the Native American Heritage Commission (NAHC) *Sacred Lands File* was completed for the area of potential project effect (APE) referenced above with negative results however the area within the APE provided is sensitive for cultural resources. Please note that the absence of specific site information in the *Sacred Lands File* does not indicate the absence of Native American cultural resources in any APE.

Attached is a list of tribes culturally affiliated to the project area. I suggest you contact all of the listed Tribes. If they cannot supply information, they might recommend others with specific knowledge. The list should provide a starting place to locate areas of potential adverse impact within the APE. By contacting all those on the list, your organization will be better able to respond to claims of failure to consult. If a response has not been received within two weeks of notification, the NAHC requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact via email: [gayle.totton@nahc.ca.gov](mailto:gayle.totton@nahc.ca.gov).

Sincerely,

A handwritten signature in cursive script that reads "Gayle Totton".

Gayle Totton, M.A., PhD.  
Associate Governmental Program Analyst  
(916) 373-3714

**CONFIDENTIALITY NOTICE:** This communication with its contents may contain confidential and/or legally privileged information. It is solely for the use of the intended recipient(s). Unauthorized interception, review, use or disclosure is prohibited and may violate applicable laws including the Electronic Communications Privacy Act. If you are not the intended recipient, please contact the sender and destroy all copies of the communication.

**Native American Heritage Commission  
Native American Contact List  
San Bernardino County  
6/15/2018**

**Agua Caliente Band of Cahuilla  
Indians**

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Cahuilla  
Luiseno

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Indians**

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Cahuilla

**Agua Caliente Band of Cahuilla  
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Cahuilla

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Mission Indians**

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Cahuilla

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Indians**

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Cahuilla  
Serrano

**Cabazon Band of Mission  
Indians**

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Cahuilla

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Cahuilla  
Serrano

**Cahuilla Band of Indians**

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Cahuilla

**Pauma Band of Luiseno Indians  
- Pauma & Yuima Reservation**

Temet Aguilar, Chairperson  
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Luiseno

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Duke- Alabama Street and Palmetto Avenue Project, San Bernardino County.

**Native American Heritage Commission  
Native American Contact List  
San Bernardino County  
6/15/2018**

**Ramona Band of Cahuilla  
Mission Indians**

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**Ramona Band of Cahuilla  
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**San Fernando Band of Mission  
Indians**

Donna Yocum, Chairperson  
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Serrano  
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Tataviam  
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**San Manuel Band of Mission  
Indians**

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**Santa Rosa Band of Mission  
Indians**

Steven Estrada, Chairperson  
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**Serrano Nation of Mission  
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**Soboba Band of Luiseno  
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**Soboba Band of Luiseno  
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**Torres-Martinez Desert Cahuilla  
Indians**

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This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Duke- Alabama Street and Palmetto Avenue Project, San Bernardino County.



3550 E. Florida Ave., Suite H  
Hemet, CA 92544-4937  
O: (951) 766-2000 | F: (951) 766-0020

July 10, 2018

Temet Aguilar  
Chairperson  
Pauma Band of Luiseno Indians - Pauma & Yuima Reservation  
P.O. Box 369  
Pauma Valley, CA 92061

Re: Phase I Cultural Resource Assessment for the Alabama Street and Palmetto Avenue Project near the City of Redlands, San Bernardino County, California.

Dear Mr. Aguilar:

Applied EarthWorks, Inc. (Æ) is conducting a cultural resource study for the Alabama Street and Palmetto Avenue Project (Project). The Project proposes the future development of approximately 55 acres on the northwest corner of Alabama Street and Palmetto Avenue, near the City of Redlands, San Bernardino County, California. As indicated on the attached map, the Project is located on the Redlands, CA 7.5' USGS map within the San Bernardino Landgrant, Township 1 South, Range 3 West, San Bernardino Baseline and Meridian (S.B.B.M.).

The archaeological literature and records search conducted at the South Central Coastal Information Center housed at California State University, Fullerton, indicates that 43 cultural resources studies have been conducted within a one-mile radius of the Project area. Five of these studies involved a portion of the Project area. Twenty-four cultural resource sites have been recorded within a one-mile radius of the Project area. None of these resources are located within the Project area.

Æ was contracted to perform an archaeological survey of the Project area. The survey was completed on July 5 and July 6, 2018 and transects spacing ranged from 10 to 15 meters. Agricultural features within the Project area were documented during the survey. No prehistoric archaeological sites or isolated finds were identified during the survey.

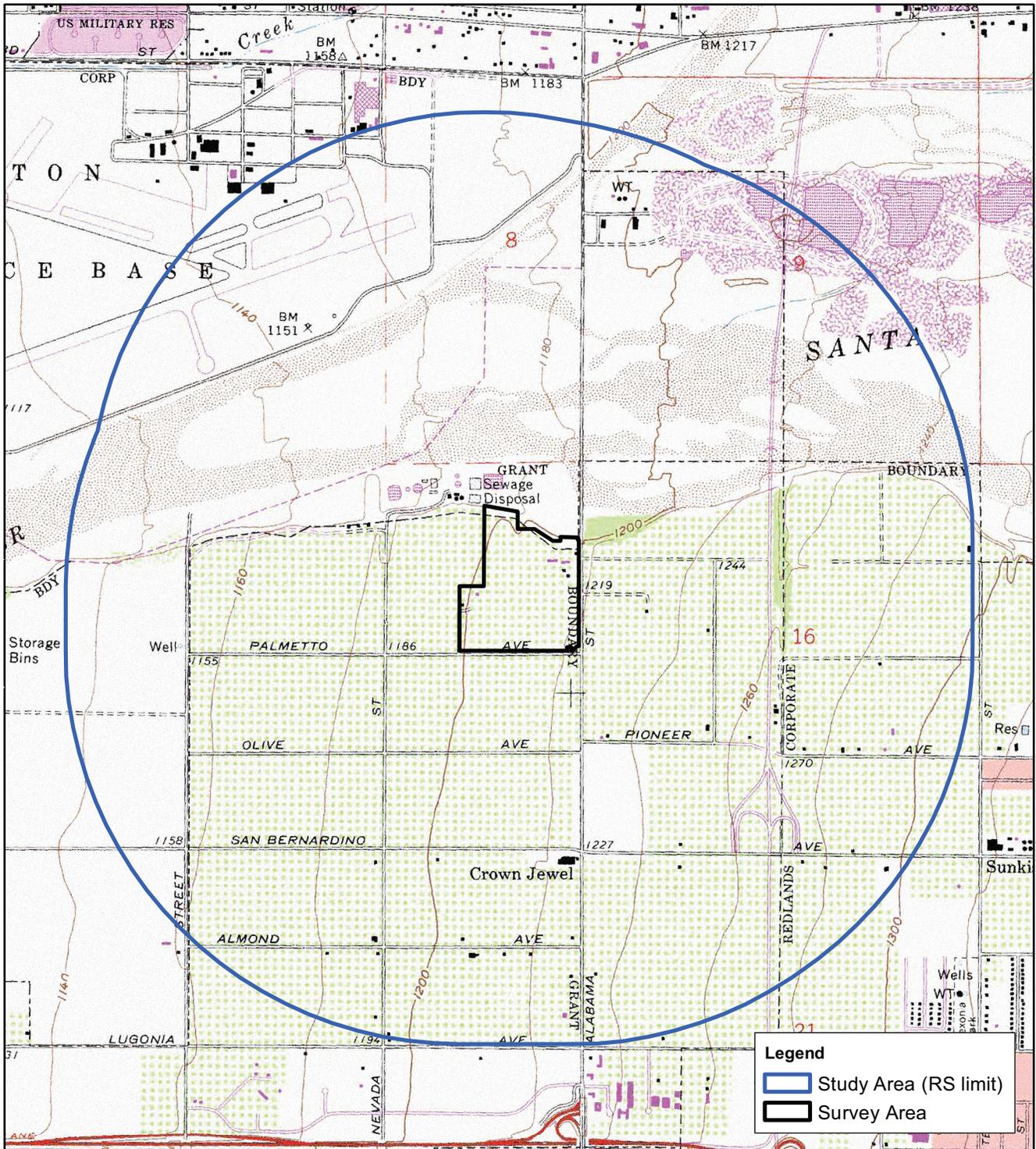
As part of the cultural resource assessment of the Project area, Æ requested a search of the *Sacred Lands File* by the Native American Heritage Commission (NAHC) on June 14, 2018. The NAHC responded on June 15, 2018 noting that the *Sacred Lands File* search was completed with negative results. Should your records show that cultural properties exist within or near the Project area shown on the enclosed map, or if you have any concerns regarding Native American issues related to the overall Project, please contact me at (951) 766-2000 or via letter expressing your concerns. You may also e-mail me at [kahintzman@appliedearthworks.com](mailto:kahintzman@appliedearthworks.com). If I do not hear from you within the next two weeks, I will contact you with a follow-up phone call or email.

Please be aware that your comments and concerns are very important to us, as well as to the successful completion of this Project. I look forward to hearing from you in the near future. Thank you, in advance, for taking the time to review this request.

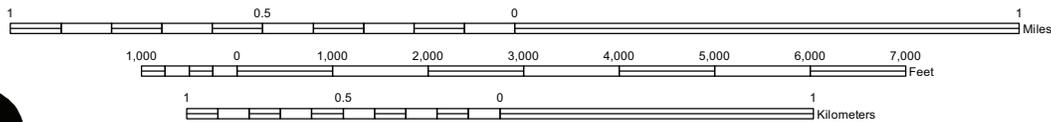
Respectfully yours,

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Kholood Abdo Hintzman  
Associate Archaeologist  
Applied EarthWorks, Inc.



SCALE 1:24,000



Township 1 South /Range 3 West , Sections 8, 9, 16, 21  
Redlands (1967-PR1988), CA 7.5' USGS Quadrangle

Records Search location map for the *Webb-Duke-Alabama Street and Palmetto Avenue Project-AE 3895*.



3550 E. Florida Ave., Suite H  
Hemet, CA 92544-4937  
O: (951) 766-2000 | F: (951) 766-0020

July 10, 2018

Patricia Garcia-Plotkin  
Director/Tribal Historic Preservation Officer  
Agua Caliente Band of Cahuilla Indians  
5401 Dinah Shore Drive  
Palm Springs, CA 92264

Re: Phase I Cultural Resource Assessment for the Alabama Street and Palmetto Avenue Project near the City of Redlands, San Bernardino County, California.

Dear Ms. Garcia-Plotkin:

Applied EarthWorks, Inc. (Æ) is conducting a cultural resource study for the Alabama Street and Palmetto Avenue Project (Project). The Project proposes the future development of approximately 55 acres on the northwest corner of Alabama Street and Palmetto Avenue, near the City of Redlands, San Bernardino County, California. As indicated on the attached map, the Project is located on the Redlands, CA 7.5' USGS map within the San Bernardino Landgrant, Township 1 South, Range 3 West, San Bernardino Baseline and Meridian (S.B.B.M.).

The archaeological literature and records search conducted at the South Central Coastal Information Center housed at California State University, Fullerton, indicates that 43 cultural resources studies have been conducted within a one-mile radius of the Project area. Five of these studies involved a portion of the Project area. Twenty-four cultural resource sites have been recorded within a one-mile radius of the Project area. None of these resources are located within the Project area.

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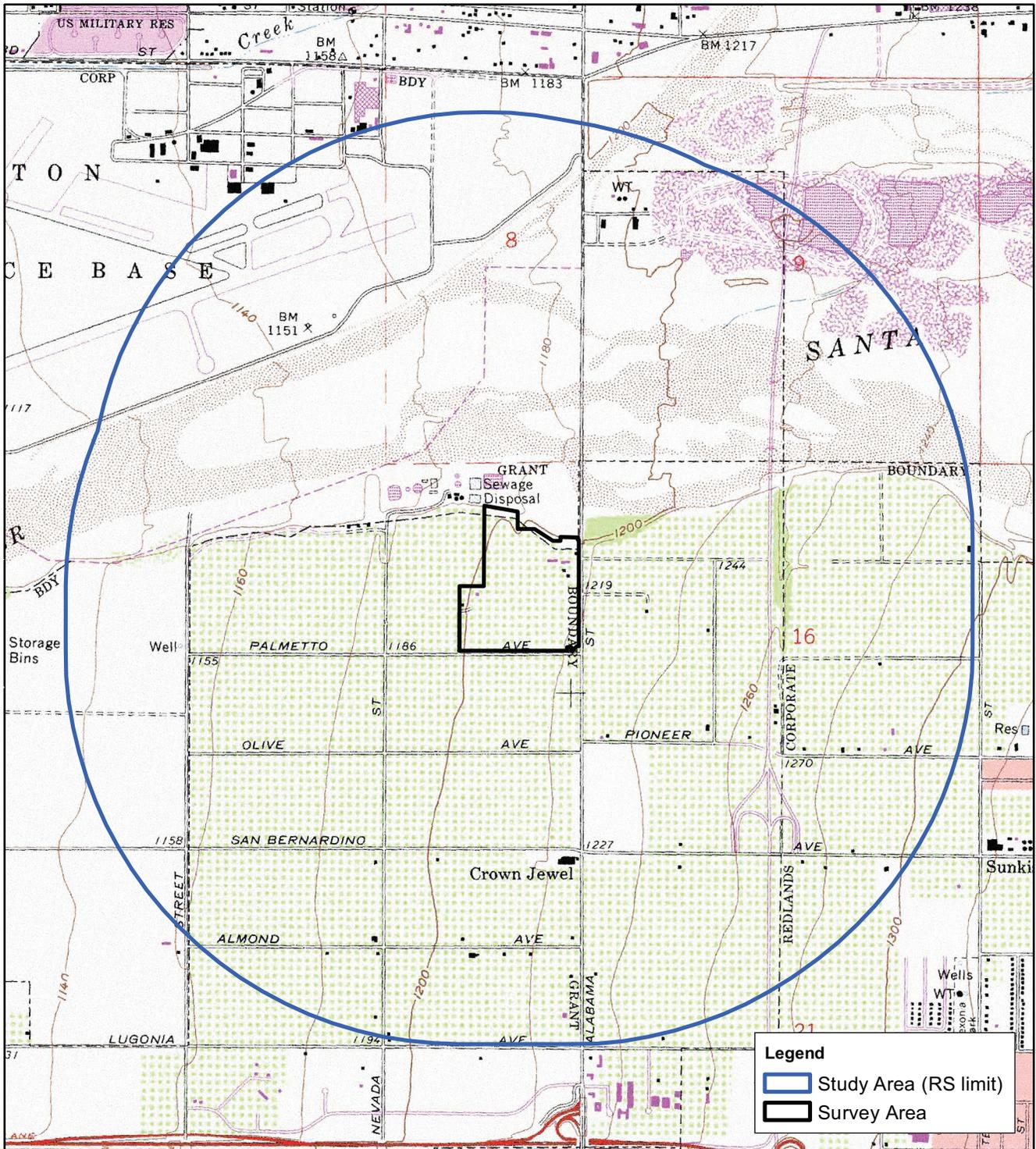
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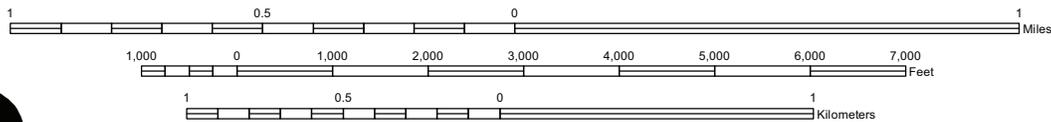
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Kholood Abdo Hintzman  
Associate Archaeologist  
Applied EarthWorks, Inc.



SCALE 1:24,000



Township 1 South /Range 3 West , Sections 8, 9, 16, 21  
Redlands (1967-PR1988), CA 7.5' USGS Quadrangle

Records Search location map for the *Webb-Duke-Alabama Street and Palmetto Avenue Project-AE 3895*.

July 10, 2018

John Gomez  
Environmental Coordinator  
Ramona Band of Mission Indians  
P. O. Box 391670  
Anza, CA, 92539

Re: Phase I Cultural Resource Assessment for the Alabama Street and Palmetto Avenue Project near the City of Redlands, San Bernardino County, California.

Dear Mr. Gomez:

Applied EarthWorks, Inc. (Æ) is conducting a cultural resource study for the Alabama Street and Palmetto Avenue Project (Project). The Project proposes the future development of approximately 55 acres on the northwest corner of Alabama Street and Palmetto Avenue, near the City of Redlands, San Bernardino County, California. As indicated on the attached map, the Project is located on the Redlands, CA 7.5' USGS map within the San Bernardino Landgrant, Township 1 South, Range 3 West, San Bernardino Baseline and Meridian (S.B.B.M.).

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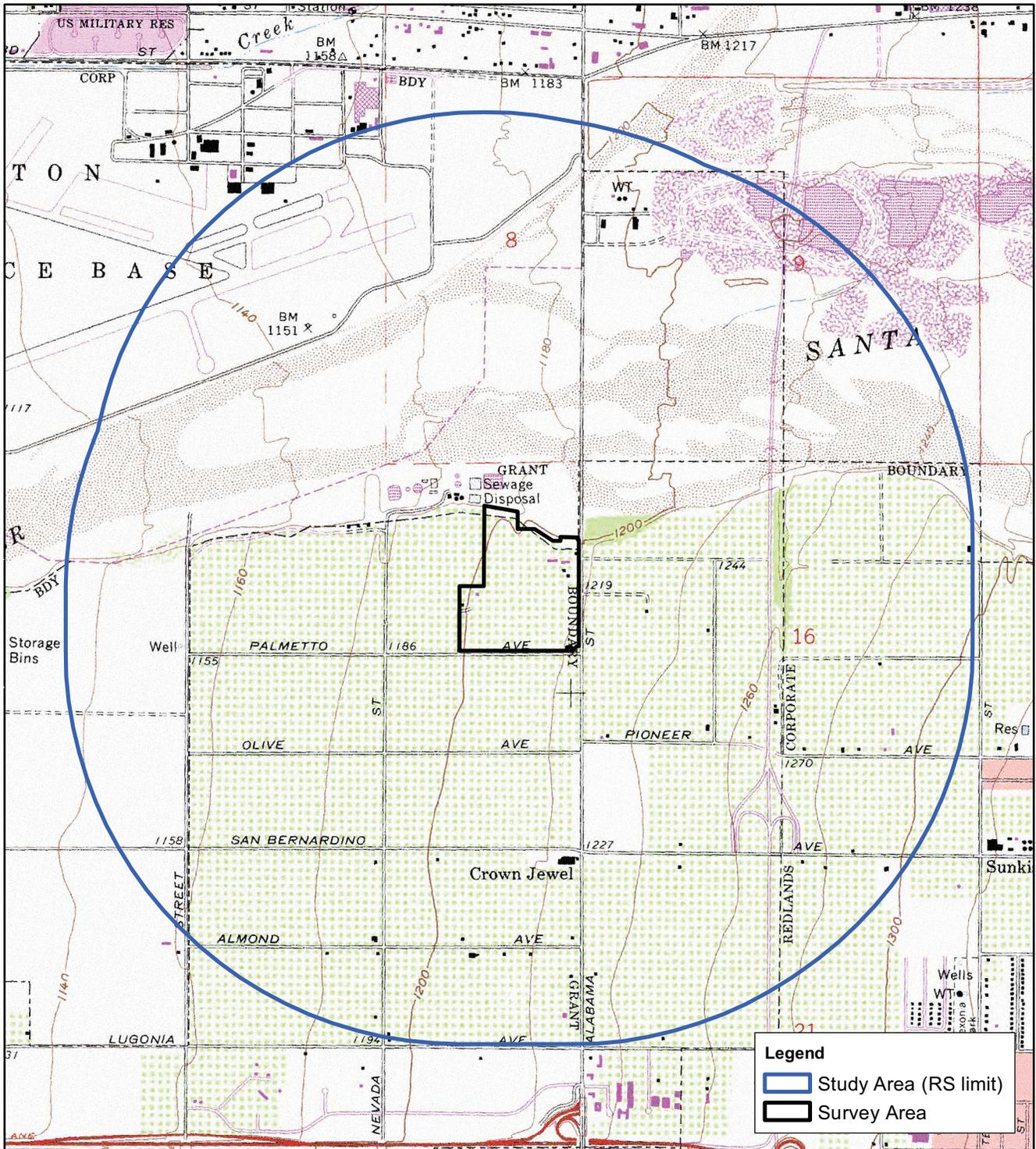
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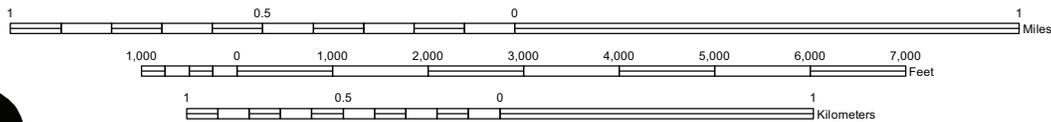
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Kholood Abdo Hintzman  
Associate Archaeologist  
Applied EarthWorks, Inc.



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Township 1 South /Range 3 West , Sections 8, 9, 16, 21  
Redlands (1967-PR1988), CA 7.5' USGS Quadrangle

Records Search location map for the *Webb-Duke-Alabama Street and Palmetto Avenue Project-AE 3895*.

July 10, 2018

Steven Estrada  
Chairman  
Santa Rosa Band of Cahuilla Indians  
P. O. Box 391820  
Anza, CA 92539

Re: Phase I Cultural Resource Assessment for the Alabama Street and Palmetto Avenue Project near the City of Redlands, San Bernardino County, California.

Dear Mr. Estrada:

Applied EarthWorks, Inc. (Æ) is conducting a cultural resource study for the Alabama Street and Palmetto Avenue Project (Project). The Project proposes the future development of approximately 55 acres on the northwest corner of Alabama Street and Palmetto Avenue, near the City of Redlands, San Bernardino County, California. As indicated on the attached map, the Project is located on the Redlands, CA 7.5' USGS map within the San Bernardino Landgrant, Township 1 South, Range 3 West, San Bernardino Baseline and Meridian (S.B.B.M.).

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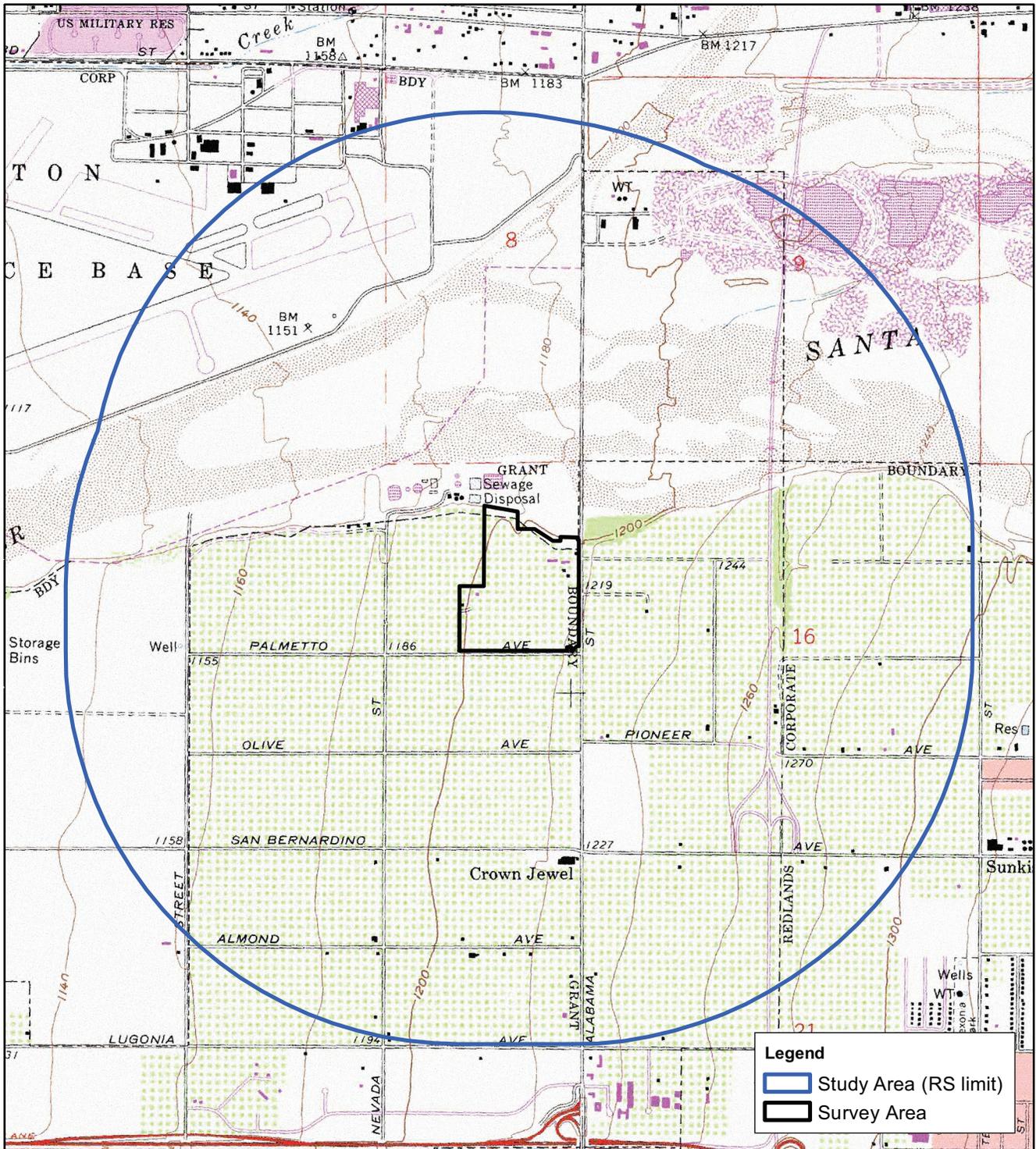
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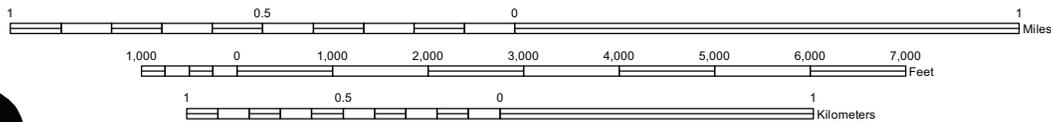
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3550 E. Florida Ave., Suite H  
Hemet, CA 92544-4937  
O: (951) 766-2000 | F: (951) 766-0020

July 10, 2018

Jessica Mauck  
Cultural Resources Analyst  
San Manuel Band of Mission Indians  
26569 Community Center Drive  
Highland, CA 92346

Re: Phase I Cultural Resource Assessment for the Alabama Street and Palmetto Avenue Project near the City of Redlands, San Bernardino County, California.

Dear Ms. Mauck:

Applied EarthWorks, Inc. (Æ) is conducting a cultural resource study for the Alabama Street and Palmetto Avenue Project (Project). The Project proposes the future development of approximately 55 acres on the northwest corner of Alabama Street and Palmetto Avenue, near the City of Redlands, San Bernardino County, California. As indicated on the attached map, the Project is located on the Redlands, CA 7.5' USGS map within the San Bernardino Landgrant, Township 1 South, Range 3 West, San Bernardino Baseline and Meridian (S.B.B.M.).

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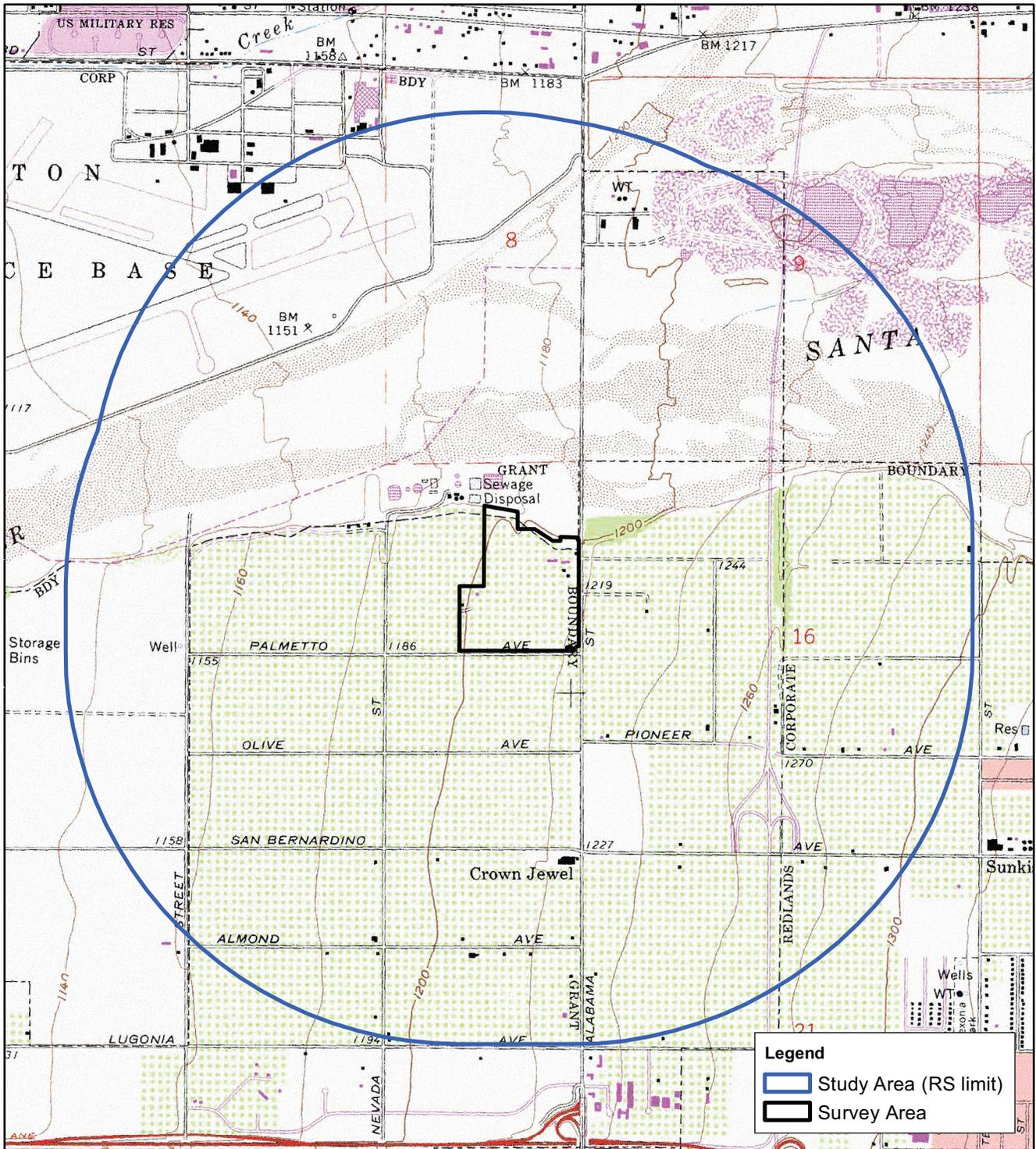
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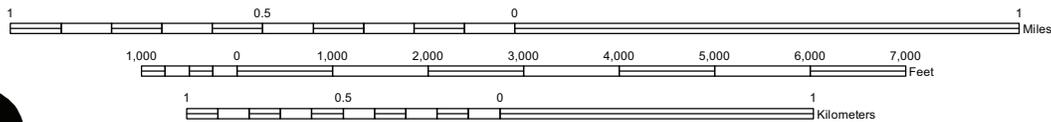
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SCALE 1:24,000



Township 1 South /Range 3 West , Sections 8, 9, 16, 21  
Redlands (1967-PR1988), CA 7.5' USGS Quadrangle

Records Search location map for the *Webb-Duke-Alabama Street and Palmetto Avenue Project-AE 3895*.

July 10, 2018

Michael Mirelez  
Cultural Resource Coordinator  
Torres-Martinez Desert Cahuilla Indians  
P. O. Box 1160  
Thermal, CA 92274

Re: Phase I Cultural Resource Assessment for the Alabama Street and Palmetto Avenue Project near the City of Redlands, San Bernardino County, California.

Dear Mr. Mirelez:

Applied EarthWorks, Inc. (Æ) is conducting a cultural resource study for the Alabama Street and Palmetto Avenue Project (Project). The Project proposes the future development of approximately 55 acres on the northwest corner of Alabama Street and Palmetto Avenue, near the City of Redlands, San Bernardino County, California. As indicated on the attached map, the Project is located on the Redlands, CA 7.5' USGS map within the San Bernardino Landgrant, Township 1 South, Range 3 West, San Bernardino Baseline and Meridian (S.B.B.M.).

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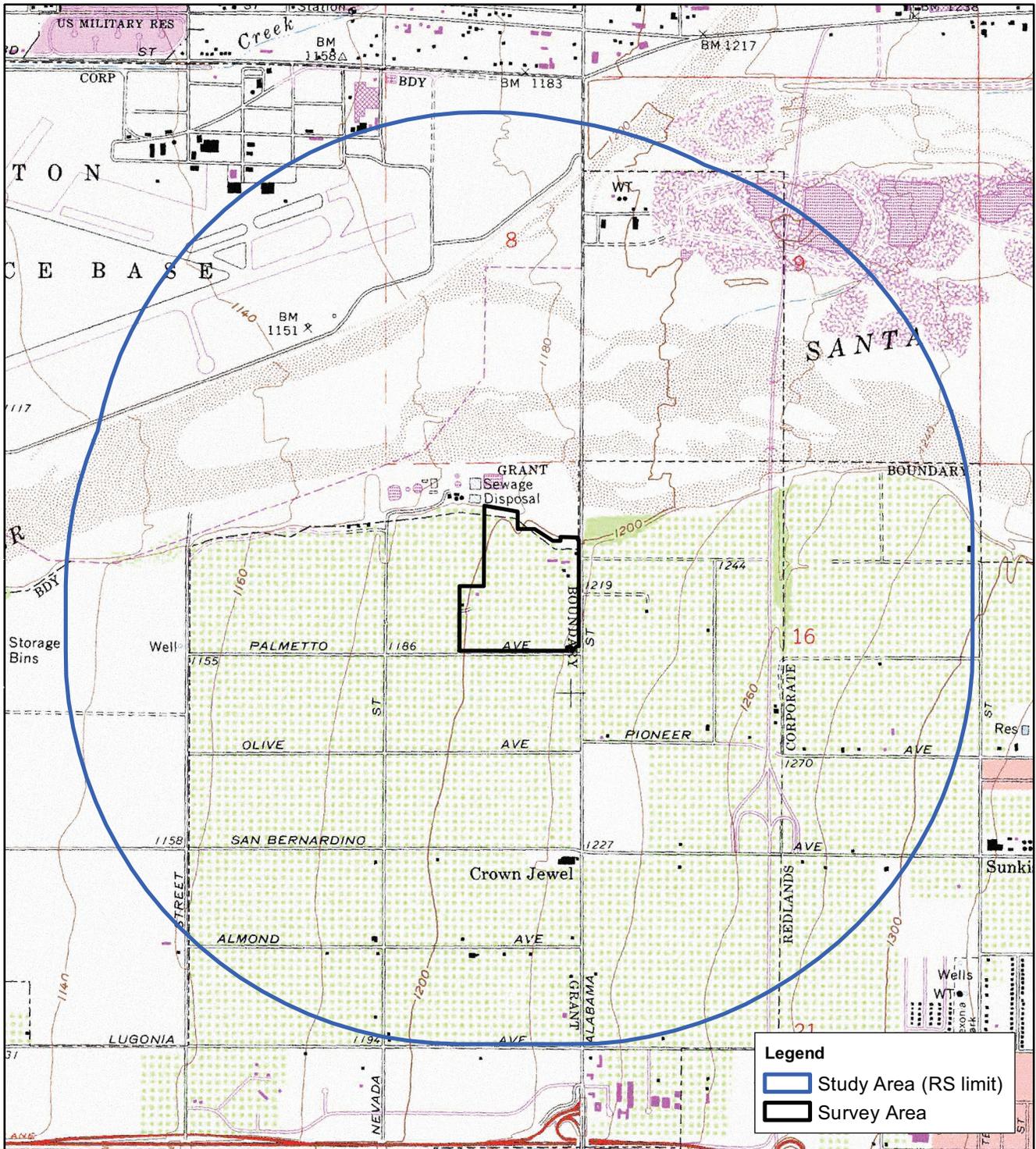
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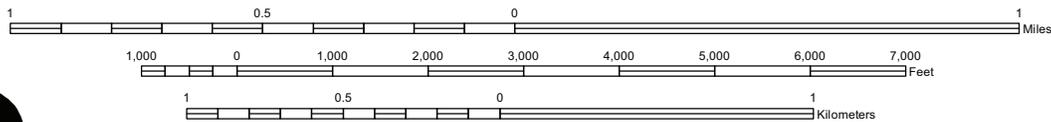
Respectfully yours,



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Associate Archaeologist  
Applied EarthWorks, Inc.



SCALE 1:24,000



Township 1 South /Range 3 West , Sections 8, 9, 16, 21  
Redlands (1967-PR1988), CA 7.5' USGS Quadrangle

Records Search location map for the *Webb-Duke-Alabama Street and Palmetto Avenue Project-AE 3895*.

July 10, 2018

Joseph Ontiveros  
Cultural Resource Department  
Soboba Band of Luiseño Indians  
P.O. Box 487  
San Jacinto, CA 92581

Re: Phase I Cultural Resource Assessment for the Alabama Street and Palmetto Avenue Project near the City of Redlands, San Bernardino County, California.

Dear Mr. Ontiveros:

Applied EarthWorks, Inc. (Æ) is conducting a cultural resource study for the Alabama Street and Palmetto Avenue Project (Project). The Project proposes the future development of approximately 55 acres on the northwest corner of Alabama Street and Palmetto Avenue, near the City of Redlands, San Bernardino County, California. As indicated on the attached map, the Project is located on the Redlands, CA 7.5' USGS map within the San Bernardino Landgrant, Township 1 South, Range 3 West, San Bernardino Baseline and Meridian (S.B.B.M.).

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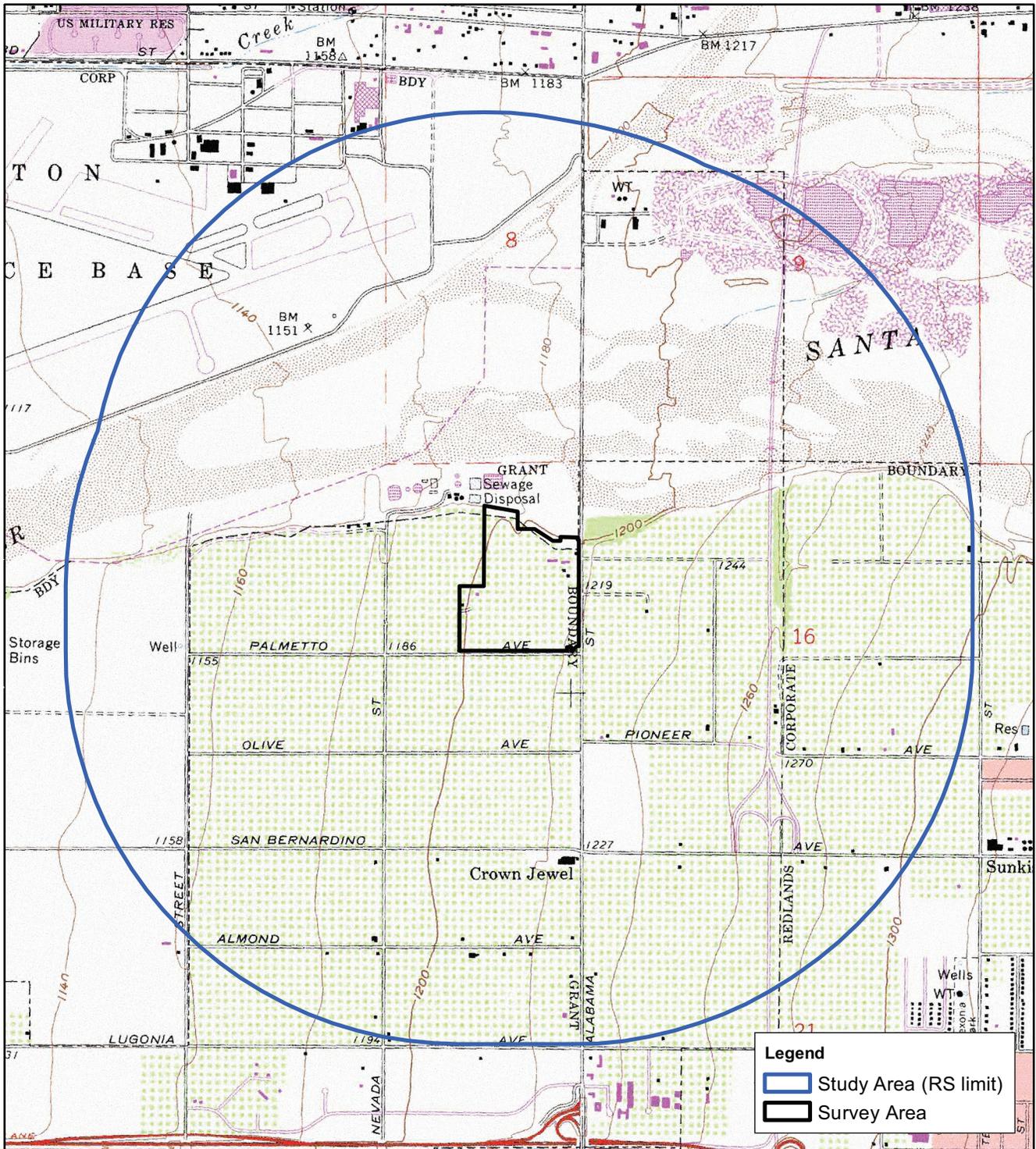
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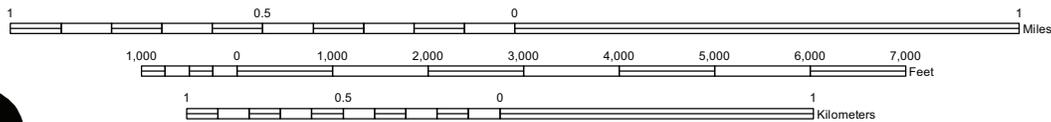
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Township 1 South /Range 3 West , Sections 8, 9, 16, 21  
Redlands (1967-PR1988), CA 7.5' USGS Quadrangle

Records Search location map for the *Webb-Duke-Alabama Street and Palmetto Avenue Project-AE 3895*.

July 10, 2018

John Perada  
Environmental Director  
Los Coyotes Band of Mission Indians  
P.O. Box 189  
Warner Springs, CA, 92086

Re: Phase I Cultural Resource Assessment for the Alabama Street and Palmetto Avenue Project near the City of Redlands, San Bernardino County, California.

Dear Mr. Perada:

Applied EarthWorks, Inc. (Æ) is conducting a cultural resource study for the Alabama Street and Palmetto Avenue Project (Project). The Project proposes the future development of approximately 55 acres on the northwest corner of Alabama Street and Palmetto Avenue, near the City of Redlands, San Bernardino County, California. As indicated on the attached map, the Project is located on the Redlands, CA 7.5' USGS map within the San Bernardino Landgrant, Township 1 South, Range 3 West, San Bernardino Baseline and Meridian (S.B.B.M.).

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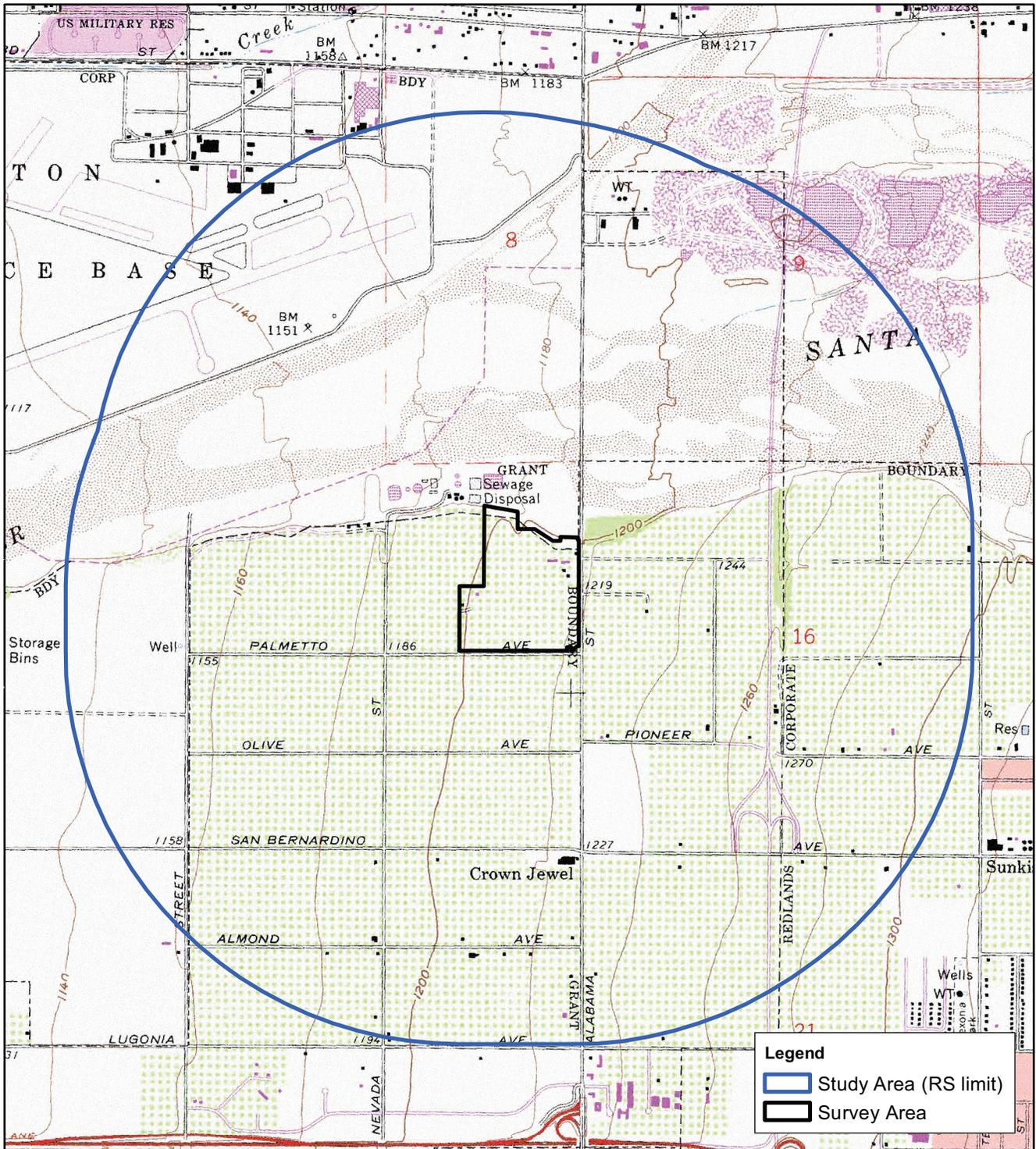
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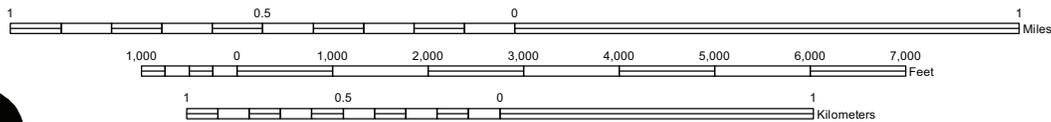
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Records Search location map for the *Webb-Duke-Alabama Street and Palmetto Avenue Project-AE 3895*.

July 10, 2018

Daniel Salgado  
Chairperson  
Cahuilla Band of Indians  
52701 U.S. Highway 371  
Anza, CA 92539

Re: Phase I Cultural Resource Assessment for the Alabama Street and Palmetto Avenue Project near the City of Redlands, San Bernardino County, California.

Dear Mr. Salgado:

Applied EarthWorks, Inc. (Æ) is conducting a cultural resource study for the Alabama Street and Palmetto Avenue Project (Project). The Project proposes the future development of approximately 55 acres on the northwest corner of Alabama Street and Palmetto Avenue, near the City of Redlands, San Bernardino County, California. As indicated on the attached map, the Project is located on the Redlands, CA 7.5' USGS map within the San Bernardino Landgrant, Township 1 South, Range 3 West, San Bernardino Baseline and Meridian (S.B.B.M.).

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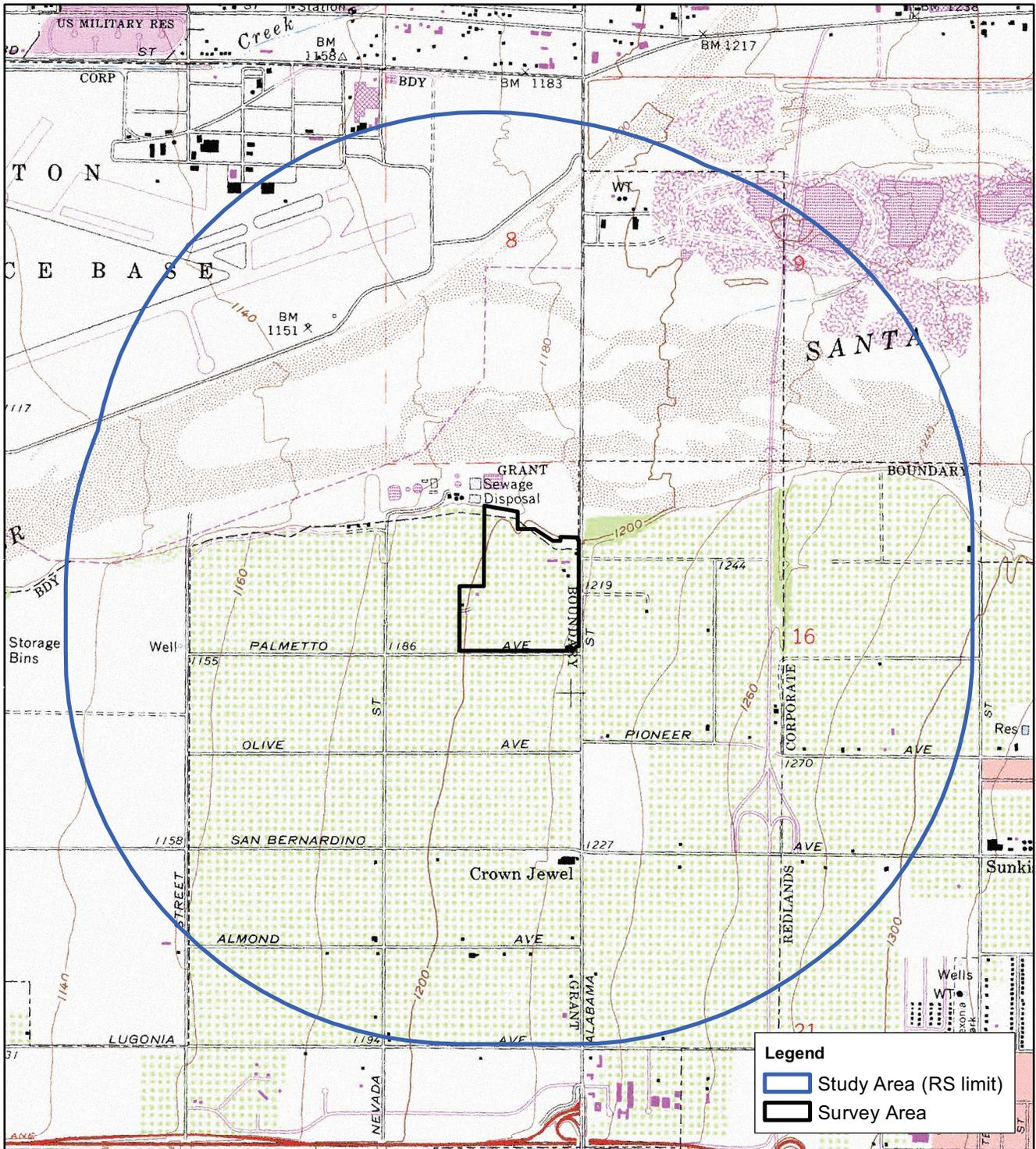
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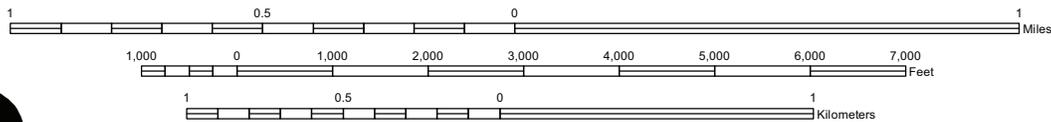
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Records Search location map for the *Webb-Duke-Alabama Street and Palmetto Avenue Project-AE 3895*.

July 10, 2018

Judy Stapp  
Director of Cultural Affairs  
Cabazon Band of Mission Indians  
84-245 Indio Springs  
Indio, CA 92203

Re: Phase I Cultural Resource Assessment for the Alabama Street and Palmetto Avenue Project near the City of Redlands, San Bernardino County, California.

Dear Ms. Stapp:

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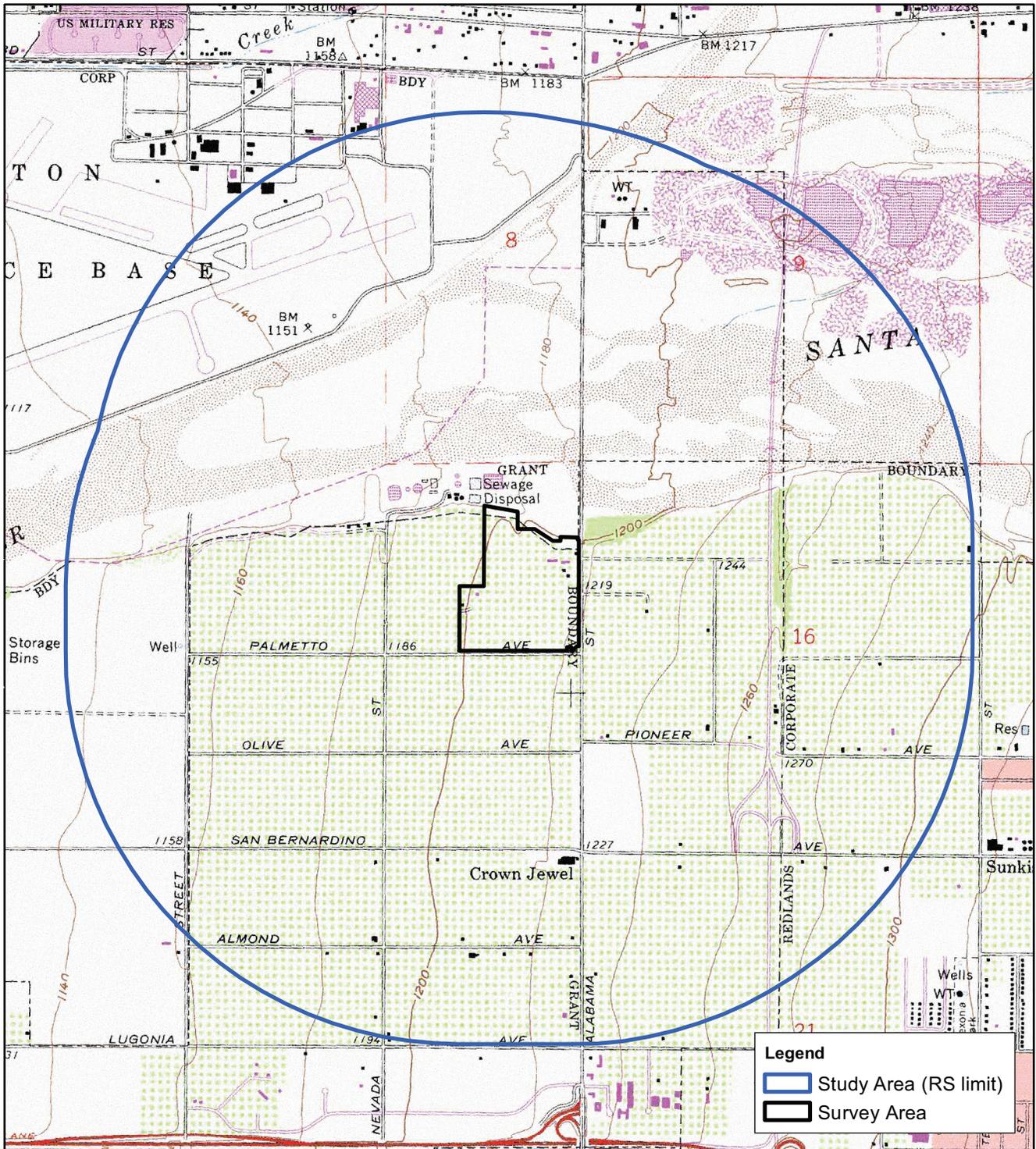
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Please be aware that your comments and concerns are very important to us, as well as to the successful completion of this Project. I look forward to hearing from you in the near future. Thank you, in advance, for taking the time to review this request.

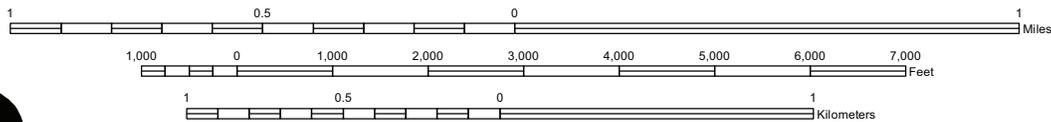
Respectfully yours,



Kholood Abdo Hintzman  
Associate Archaeologist  
Applied EarthWorks, Inc.



SCALE 1:24,000



Township 1 South /Range 3 West , Sections 8, 9, 16, 21  
Redlands (1967-PR1988), CA 7.5' USGS Quadrangle

Records Search location map for the *Webb-Duke-Alabama Street and Palmetto Avenue Project-AE 3895*.



3550 E. Florida Ave., Suite H  
Hemet, CA 92544-4937  
O: (951) 766-2000 | F: (951) 766-0020

July 10, 2018

Denisa Torres  
Cultural Resources Manager  
Morongo Band of Mission Indians  
12700 Pumarra Road  
Banning, CA 92220

Re: Phase I Cultural Resource Assessment for the Alabama Street and Palmetto Avenue Project near the City of Redlands, San Bernardino County, California.

Dear Ms. Torres:

Applied EarthWorks, Inc. (Æ) is conducting a cultural resource study for the Alabama Street and Palmetto Avenue Project (Project). The Project proposes the future development of approximately 55 acres on the northwest corner of Alabama Street and Palmetto Avenue, near the City of Redlands, San Bernardino County, California. As indicated on the attached map, the Project is located on the Redlands, CA 7.5' USGS map within the San Bernardino Landgrant, Township 1 South, Range 3 West, San Bernardino Baseline and Meridian (S.B.B.M.).

The archaeological literature and records search conducted at the South Central Coastal Information Center housed at California State University, Fullerton, indicates that 43 cultural resources studies have been conducted within a one-mile radius of the Project area. Five of these studies involved a portion of the Project area. Twenty-four cultural resource sites have been recorded within a one-mile radius of the Project area. None of these resources are located within the Project area.

Æ was contracted to perform an archaeological survey of the Project area. The survey was completed on July 5 and July 6, 2018 and transects spacing ranged from 10 to 15 meters. Agricultural features within the Project area were documented during the survey. No prehistoric archaeological sites or isolated finds were identified during the survey.

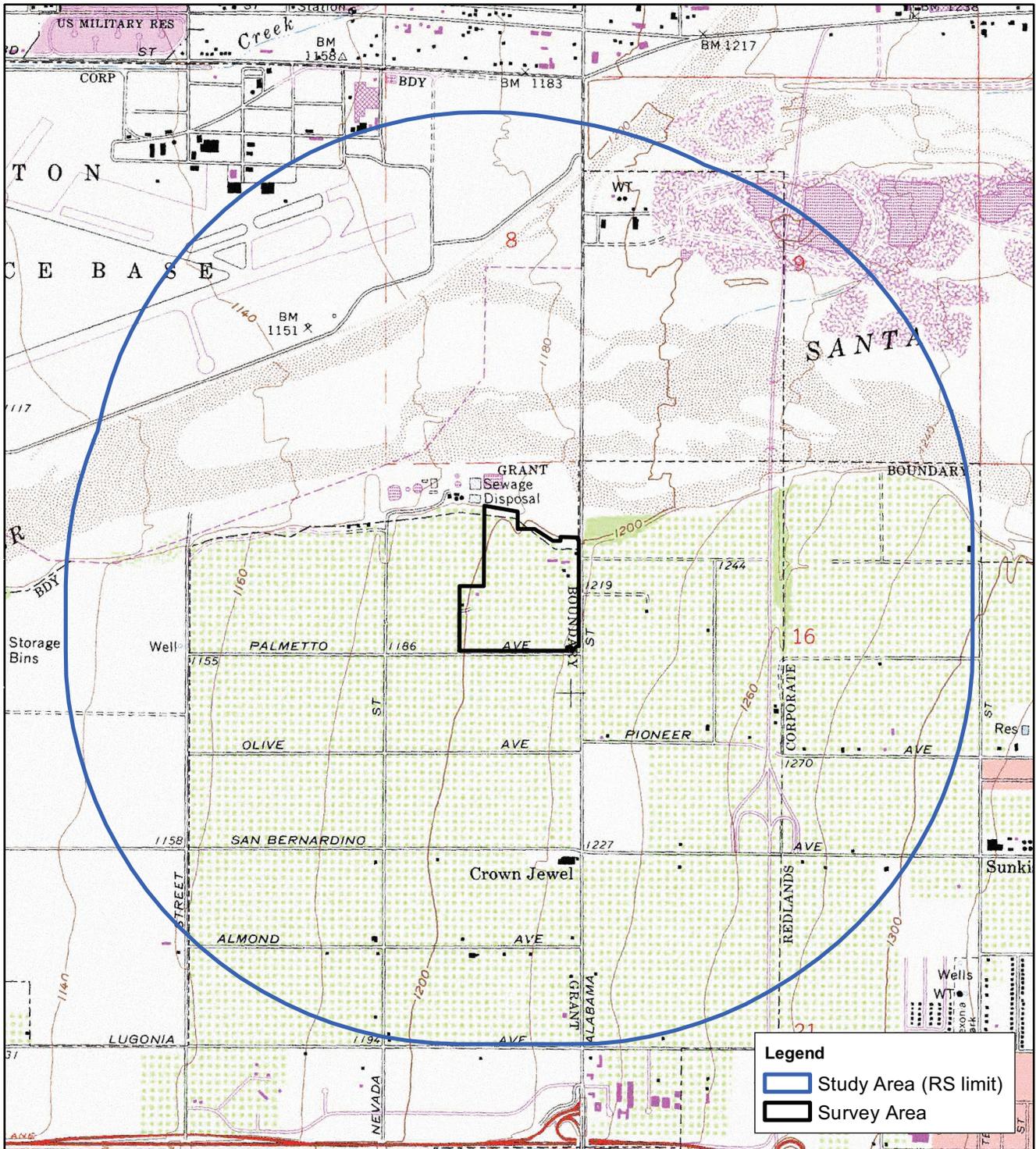
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Please be aware that your comments and concerns are very important to us, as well as to the successful completion of this Project. I look forward to hearing from you in the near future. Thank you, in advance, for taking the time to review this request.

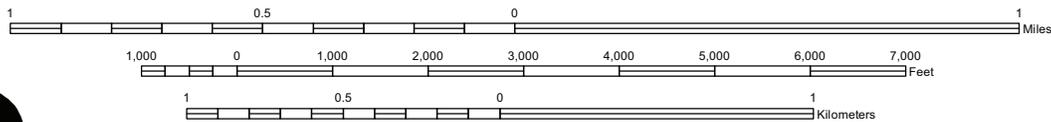
Respectfully yours,

A handwritten signature in black ink, appearing to read "Kholood Abdo Hintzman", written over a horizontal line.

Kholood Abdo Hintzman  
Associate Archaeologist  
Applied EarthWorks, Inc.



SCALE 1:24,000



Township 1 South /Range 3 West , Sections 8, 9, 16, 21  
Redlands (1967-PR1988), CA 7.5' USGS Quadrangle

Records Search location map for the *Webb-Duke-Alabama Street and Palmetto Avenue Project-AE 3895*.

July 10, 2018

Amanda Vance  
Chairperson  
Augustine Band of Cahuilla Indians  
P.O. Box 846  
Coachella, CA 92236

Re: Phase I Cultural Resource Assessment for the Alabama Street and Palmetto Avenue Project near the City of Redlands, San Bernardino County, California.

Dear Ms. Vance:

Applied EarthWorks, Inc. (Æ) is conducting a cultural resource study for the Alabama Street and Palmetto Avenue Project (Project). The Project proposes the future development of approximately 55 acres on the northwest corner of Alabama Street and Palmetto Avenue, near the City of Redlands, San Bernardino County, California. As indicated on the attached map, the Project is located on the Redlands, CA 7.5' USGS map within the San Bernardino Landgrant, Township 1 South, Range 3 West, San Bernardino Baseline and Meridian (S.B.B.M.).

The archaeological literature and records search conducted at the South Central Coastal Information Center housed at California State University, Fullerton, indicates that 43 cultural resources studies have been conducted within a one-mile radius of the Project area. Five of these studies involved a portion of the Project area. Twenty-four cultural resource sites have been recorded within a one-mile radius of the Project area. None of these resources are located within the Project area.

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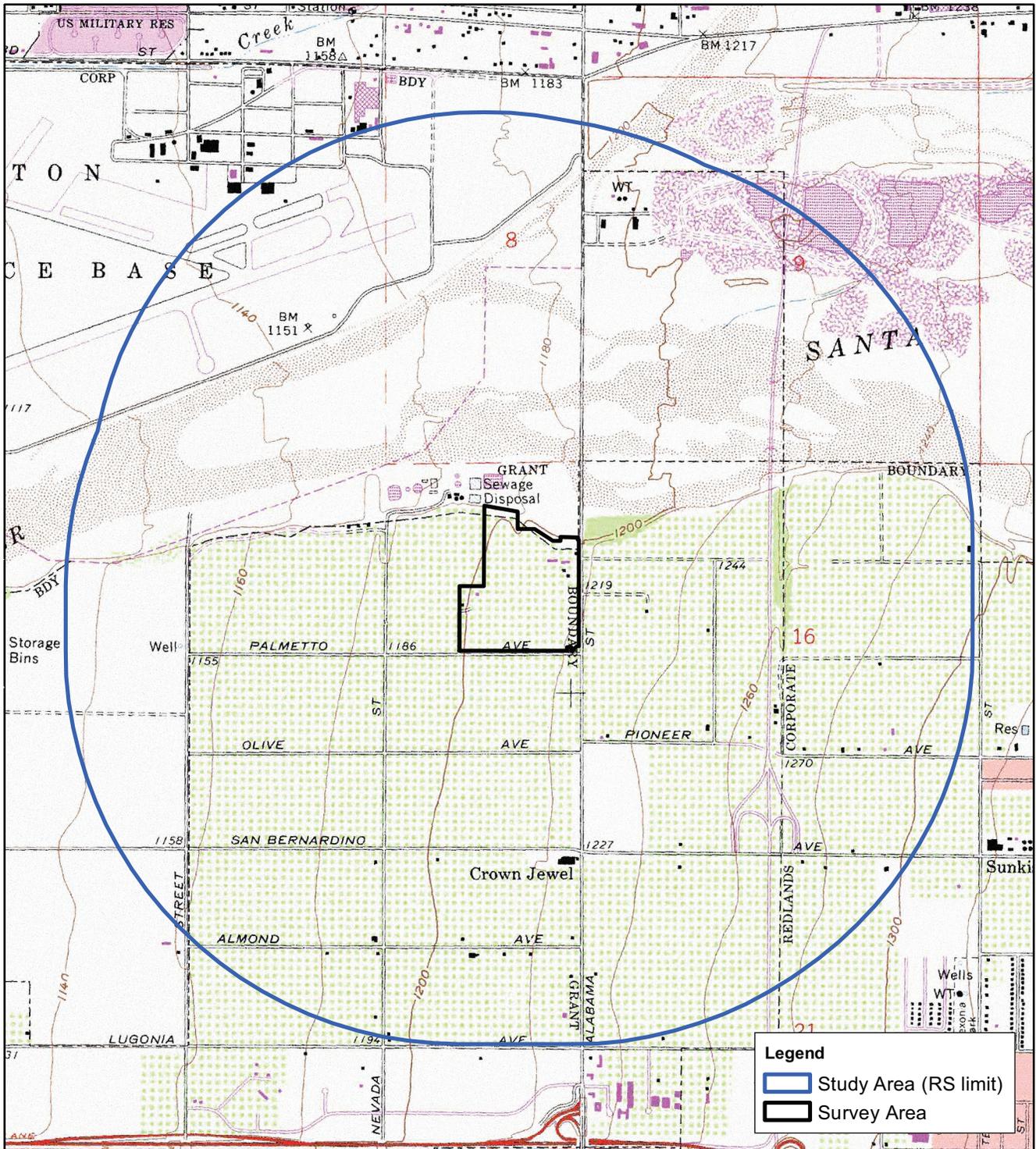
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Please be aware that your comments and concerns are very important to us, as well as to the successful completion of this Project. I look forward to hearing from you in the near future. Thank you, in advance, for taking the time to review this request.

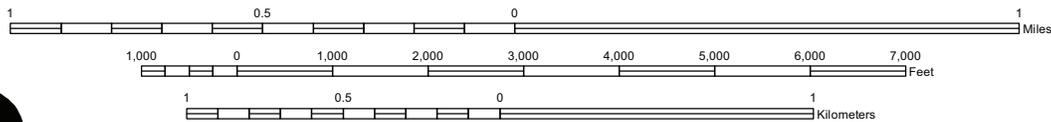
Respectfully yours,



Kholood Abdo Hintzman  
Associate Archaeologist  
Applied EarthWorks, Inc.



SCALE 1:24,000



Township 1 South /Range 3 West , Sections 8, 9, 16, 21  
Redlands (1967-PR1988), CA 7.5' USGS Quadrangle

Records Search location map for the *Webb-Duke-Alabama Street and Palmetto Avenue Project-AE 3895*.

July 10, 2018

Goldie Walker  
Chairwoman  
Serrano Nation of Mission Indians  
P.O. Box 343  
Patton, CA 92369

Re: Phase I Cultural Resource Assessment for the Alabama Street and Palmetto Avenue Project near the City of Redlands, San Bernardino County, California.

Dear Ms. Walker:

Applied EarthWorks, Inc. (Æ) is conducting a cultural resource study for the Alabama Street and Palmetto Avenue Project (Project). The Project proposes the future development of approximately 55 acres on the northwest corner of Alabama Street and Palmetto Avenue, near the City of Redlands, San Bernardino County, California. As indicated on the attached map, the Project is located on the Redlands, CA 7.5' USGS map within the San Bernardino Landgrant, Township 1 South, Range 3 West, San Bernardino Baseline and Meridian (S.B.B.M.).

The archaeological literature and records search conducted at the South Central Coastal Information Center housed at California State University, Fullerton, indicates that 43 cultural resources studies have been conducted within a one-mile radius of the Project area. Five of these studies involved a portion of the Project area. Twenty-four cultural resource sites have been recorded within a one-mile radius of the Project area. None of these resources are located within the Project area.

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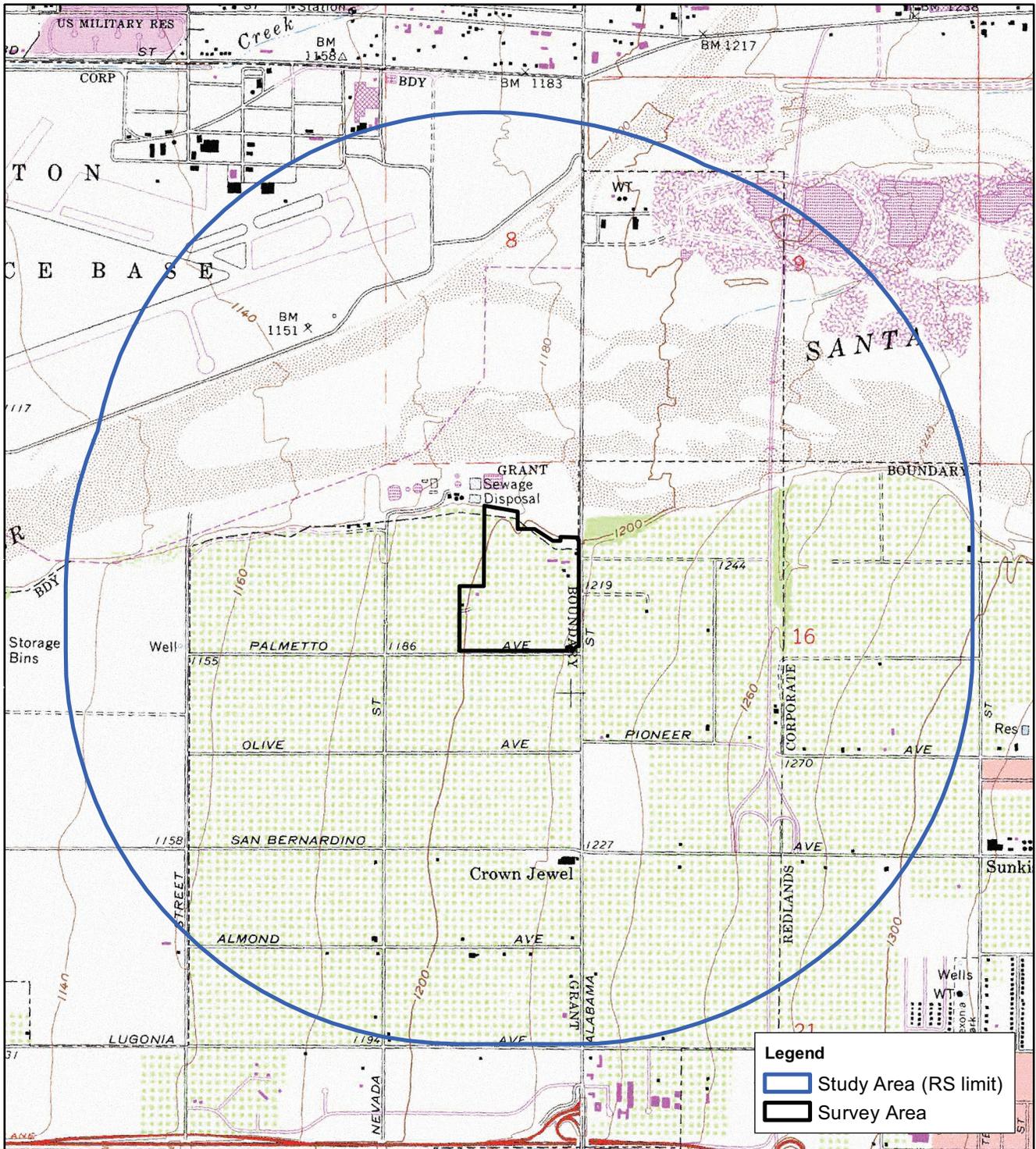
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Please be aware that your comments and concerns are very important to us, as well as to the successful completion of this Project. I look forward to hearing from you in the near future. Thank you, in advance, for taking the time to review this request.

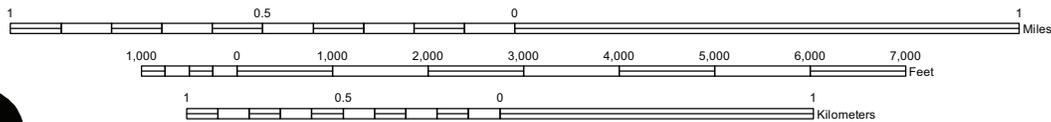
Respectfully yours,



Kholood Abdo Hintzman  
Associate Archaeologist  
Applied EarthWorks, Inc.



SCALE 1:24,000



Township 1 South /Range 3 West , Sections 8, 9, 16, 21  
Redlands (1967-PR1988), CA 7.5' USGS Quadrangle

Records Search location map for the *Webb-Duke-Alabama Street and Palmetto Avenue Project-AE 3895*.

July 11, 2018

Donna Yocum  
Chairperson  
San Fernando Band of Mission Indians  
P.O. Box 221838  
Newhall, CA 91322

Re: Phase I Cultural Resource Assessment for the Alabama Street and Palmetto Avenue Project near the City of Redlands, San Bernardino County, California.

Dear Ms. Yocum:

Applied EarthWorks, Inc. (Æ) is conducting a cultural resource study for the Alabama Street and Palmetto Avenue Project (Project). The Project proposes the future development of approximately 55 acres on the northwest corner of Alabama Street and Palmetto Avenue, near the City of Redlands, San Bernardino County, California. As indicated on the attached map, the Project is located on the Redlands, CA 7.5' USGS map within the San Bernardino Landgrant, Township 1 South, Range 3 West, San Bernardino Baseline and Meridian (S.B.B.M.).

The archaeological literature and records search conducted at the South Central Coastal Information Center housed at California State University, Fullerton, indicates that 43 cultural resources studies have been conducted within a one-mile radius of the Project area. Five of these studies involved a portion of the Project area. Twenty-four cultural resource sites have been recorded within a one-mile radius of the Project area. None of these resources are located within the Project area.

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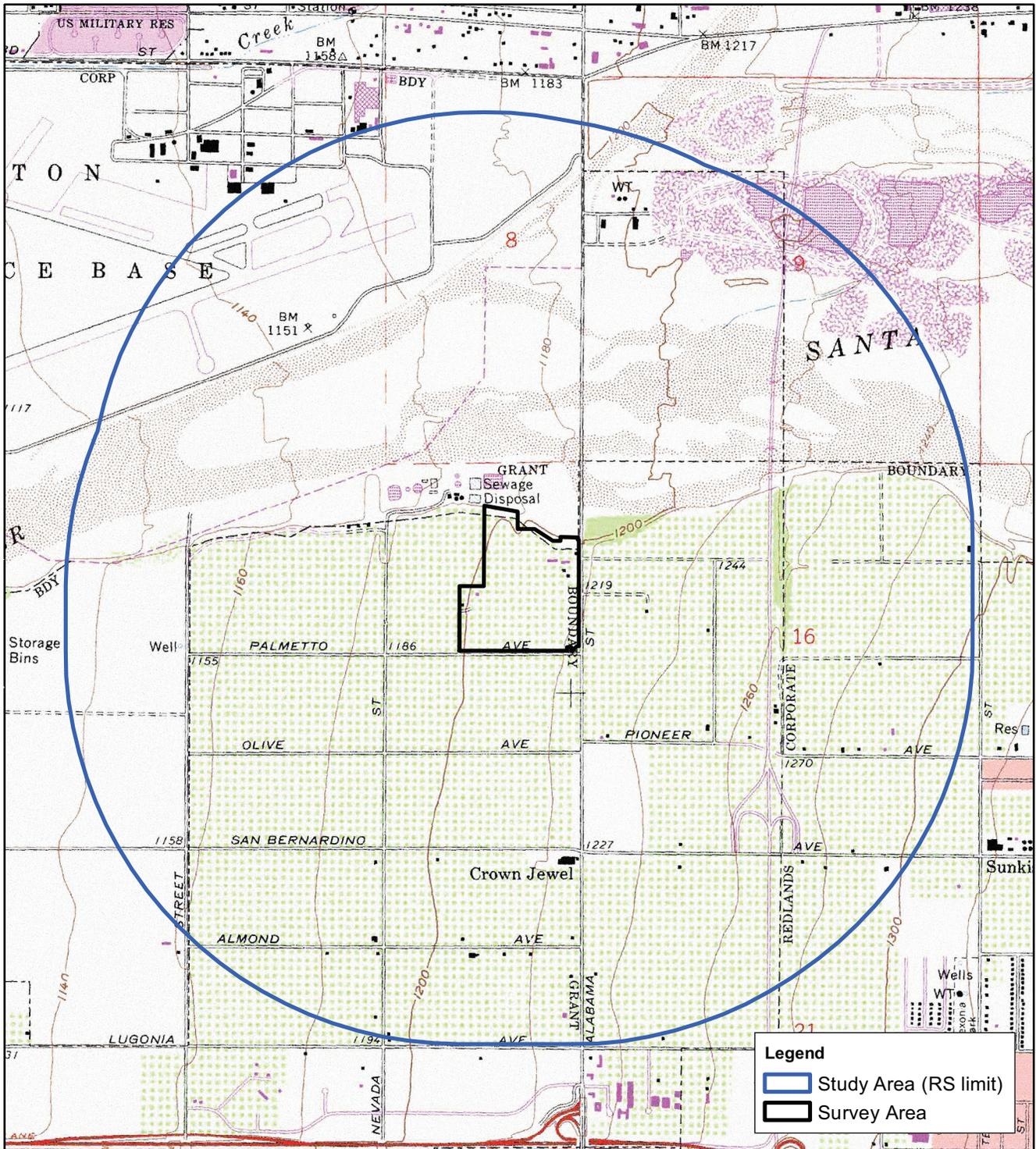
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Please be aware that your comments and concerns are very important to us, as well as to the successful completion of this Project. I look forward to hearing from you in the near future. Thank you, in advance, for taking the time to review this request.

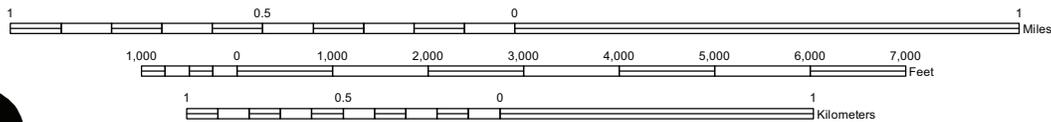
Respectfully yours,



Kholood Abdo Hintzman  
Associate Archaeologist  
Applied EarthWorks, Inc.



SCALE 1:24,000



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Records Search location map for the *Webb-Duke-Alabama Street and Palmetto Avenue Project-AE 3895*.



Kholood Abdo-Hintzman <kahintzman@appliedearthworks.com>

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## Phase I Cultural Resource Investigation in San Bernardino County

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**Stapp, Judy** <jstapp@cabazonindians-nsn.gov>

Tue, Jul 10, 2018 at 2:16 PM

To: Kholood Abdo-Hintzman <kahintzman@appliedearthworks.com>

Dear Kholood,

The Cabazon Band of Mission Indians does not comment on projects located outside of their traditional use area.

Best regards,

Judy Stapp  
Director of Cultural Affairs  
Cabazon Band of Mission Indians  
84-245 Indio Springs Parkway  
Indio, CA 92203  
Phone (760) 238-5770  
Fax: (760) 347-7880

This message contains information which may be confidential and privileged. Unless you are the intended addressee (or authorized to receive for the intended addressee), you may not use, copy or disclose to anyone the message or any information contained in the message. If you have received the message in error, please advise the sender at Cabazon Band of Mission Indians [jstapp@cabazonindians-nsn.gov](mailto:jstapp@cabazonindians-nsn.gov) and delete the message. Thank you.

From: Kholood Abdo-Hintzman <[kahintzman@appliedearthworks.com](mailto:kahintzman@appliedearthworks.com)<mailto:kahintzman@appliedearthworks.com>>

Date: Tuesday, July 10, 2018 at 1:50 PM

To: Judy <[jstapp@cabazonindians-nsn.gov](mailto:jstapp@cabazonindians-nsn.gov)<mailto:jstapp@cabazonindians-nsn.gov>>

Subject: Phase I Cultural Resource Investigation in San Bernardino County

[Quoted text hidden]



03-027-2018-002

July 10, 2018

[VIA EMAIL TO:kahintzman@appliedearthworks.com]  
Applied Earthworks  
Mr. Kholood Abdo Hintzman  
3550 E. Florida Ave., Suite H  
Hemet, CA 92544-4937

**Re: Phase I- Alabama Street & Palmetto Ave**

Dear Mr. Kholood Abdo Hintzman,

The Agua Caliente Band of Cahuilla Indians (ACBCI) appreciates your efforts to include the Tribal Historic Preservation Office (THPO) in the Alabama & Palmetto Ave Development project. The project area is not located within the boundaries of the ACBCI Reservation. However, it is within the Tribe's Traditional Use Area. For this reason, the ACBCI THPO requests the following:

\*At this time ACBCI defers to the San Manuel Band of Mission Indians. This letter shall conclude our consultation efforts.

Again, the Agua Caliente appreciates your interest in our cultural heritage. If you have questions or require additional information, please call me at (760)699-6829. You may also email me at ACBCI-THPO@aguacaliente.net.

Cordially,

Katie Croft  
Cultural Resources Manager  
Tribal Historic Preservation Office  
AGUA CALIENTE BAND  
OF CAHUILLA INDIANS



Kholood Abdo-Hintzman <kahintzman@appliedearthworks.com>

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## Phase I Cultural resource Investigation in San Bernardino County

---

**Jessica Mauck** <JMauck@sanmanuel-nsn.gov>  
To: Kholood Abdo-Hintzman <kahintzman@appliedearthworks.com>

Wed, Jul 18, 2018 at 4:41 PM

Hi Kholood,

Thank you for reaching out to SMBMI for information regarding the proposed project. For your knowledge, the NAHC seems to have made a mistake with the SLF result for this project, as it does fall within the boundary of a rather large SLF we have in the region. However, that being said, we created the SLF with a very large buffer, so the resources of concern are very unlikely to be impacted by the proposed project. The bigger concern Tribe has with this location is the proximity to the Santa Ana River, which is a TCR for SMBMI, and the potential for subsurface deposits. The recommendation from SMBMI for this project is the conduct Phase I presence/absence testing for this project area, assuming there are in situ Holocene layers beneath the existing disturbance that resulted from agriculture. This is a recommendation we make to the Lead Agency during consultation after review the cultural, paleo, and geotech reports, as well as the proposed horizontal and vertical extent of disturbance. For your report, I do recommend reaching back out to the NAHC and clarifying whether or not, per their records, this project falls within an existing SLF for SMBMI, and simply making a note that Tribe may have concerns and will consult with the Lead Agency.

Please let me know if you have any questions.

Regards,

**Jessica Mauck**

CULTURAL RESOURCES ANALYST

O: (909) 864-8933 x3249

M: (909) 725-9054

26569 Community Center Drive, Highland California 92346

**SAN MANUEL**  
BAND OF MISSION INDIANS

**From:** Kholood Abdo-Hintzman [mailto:[kahintzman@appliedearthworks.com](mailto:kahintzman@appliedearthworks.com)]

**Sent:** Tuesday, July 10, 2018 2:24 PM

**To:** Jessica Mauck

**Subject:** Phase I Cultural resource Investigation in San Bernardino County



**MORONGO BAND OF MISSION INDIANS**  
**TRIBAL HISTORIC PRESERVATION OFFICE**  
12700 PUMARRA RD BANNING, CA 92220  
OFFICE 951-755-5059 FAX 951-572-6004

Date: 7/19/2018

Re:

Alabama Street and Palmetto Avenue Project, near Redlands

Dear,

Kholood Abdo Hintzman  
Associate Archaeologist  
Applied Earthworks

Thank you for contacting the Morongo Band of Mission Indians (MBMI) Cultural Heritage Department regarding the above referenced project(s). After conducting a preliminary review of the project, the tribe would like to respectfully issue the following comments and/or requests:

- The project is located outside of the Tribe's aboriginal territory and is not within an area considered to be a traditional use area or one in which the Tribe has cultural ties. We recommend contacting the appropriate tribe(s) who may have cultural affiliations to the project area. We have no further comments at this time.
- The project is located within the Tribe's aboriginal territory or in an area considered to be a traditional use area or one in which the Tribe has cultural ties. In order to further evaluate the project for potential impacts to tribal cultural resources, we would like to formally request the following:
  - A thorough records search be conducted by contacting one of the California Historical Resources Information System (CHRIS) Archaeological Information Centers and a copy of the search results be provided to the tribe.
  - Tribal monitor participation during the initial pedestrian field survey of the Phase I Study of the project and a copy of the results of that study. In the event the pedestrian survey has already been conducted, MBMI requests a copy of the Phase I study be provided to the tribe as soon as it can be made available.
  - MBMI Tribal Cultural Resource Monitor(s) be present during all required ground disturbing activities pertaining to the project.
- The project is located with the current boundaries of the Morongo Indian Reservation. Please contact the Morongo Cultural Heritage Department for further details.

Please be aware that this letter is merely intended to notify your office that the tribe has received your letter requesting tribal consultation for the above mentioned project and is requesting to engage in consultation. Specific details regarding the tribe's involvement in the project must be discussed on a project by project basis during the tribal consultation process with the lead agency. This letter does not constitute "meaningful" tribal consultation nor does it conclude the consultation process. Under federal and state law, "meaningful" consultation is understood to be an ongoing government-to-government process and may involve requests for additional information, phone conferences and/or face-to-face meetings. If you have any further questions or concerns regarding this letter, please contact the Morongo Cultural Heritage office at (951) 755-5259.

Please include this response in your report to your client.

Sincerely,

Tribal Historic Preservation Office  
Morongo Band of Mission Indians  
Email: [thpo@morongo-nsn.gov](mailto:thpo@morongo-nsn.gov)  
Phone: (951) 755-5059



**Cahuilla Band of Indians  
Cultural Department**

52701 Highway 371 Anza, California 92539

Phone (951) 763-5549 Fax (951) 763-2808

Email: [Culturaldirector@cahuilla.net](mailto:Culturaldirector@cahuilla.net)

July 17, 2018

Kholood Abdo Hintzman  
Applied Earthworks Inc.  
3550 E. Florida Ave., Suite H  
Hemet, Ca 92544-4937

Re: Phase I Cultural Resources Assessment for the Alabama Street and Palmetto Avenue Project

Dear Mr. Hintzman,

The Cahuilla Band of Indians received your letter on July 10, 2018 regarding the Phase I Cultural Resource Assessment for the Alabama Street and Palmetto Avenue Project near the City of Redlands, San Bernardino County, Ca. The Cahuilla band does not have knowledge of any cultural resources within or near the project area. Although this project is outside the Cahuilla reservation boundary it is within the Cahuilla traditional land use area. We respectfully request to be notified of all updates and/or changes with the project moving forward as we have an interest in this project. The Cahuilla band appreciates your help in preserving Tribal Cultural Resources in your project.

Respectfully,



BobbyRay Esparza  
Cultural Coordinator  
Cahuilla Band of Indians  
Cell: (760) 423-2773  
Office: (951) 763-5549  
Fax: (951) 763-2808

## **APPENDIX B**

### **DPR Forms**

State of California — The Resources Agency  
 DEPARTMENT OF PARKS AND RECREATION  
**PRIMARY RECORD**

Primary #  
 HRI #  
 Trinomial  
 NRHP Status Code 6Z

Other Listings  
 Review Code

Reviewer

Date

Page 1 of 10

Resource Name or # AE-3895-01H

**P1. Other Identifier:** Flume

**\*P2. Location: a. County:** San Bernardino

Not for Publication  Unrestricted

**b. USGS 7.5' Quad:** Redlands  
 Bernardino Land Grant

**Date:** 1978 (Photo revised 1980) T 1S, R 3W; ¼ of ¼ of Section San SB B.M.

**c. Address:**

**d. UTM:** NAD 83, Zone 11; 480479 mE / 3772000 mN

**e. Other Locational Data:** From Interstate 10 take exit Alabama Street north 1.4 miles. The irrigation flume is located in two parcels west of Alabama Street. APN #: 029204143; 02920418

**\*P3a. Description:** This historic site consists of a single, 2,016 foot long, rectangular (cross-section) gravity-fed irrigation flume composed of split local cobbles set in concrete mortar that extends on a north/south bearing. The flume is constructed of granite and quartzite boulders collected from the Santa Ana River flood plain directly to the north of the property and concrete mortar. The boulders range in size from 10 to 14 inches and are cemented into the walls of the flume with coarse grain concrete. See Linear Feature record for more detail.

**\*P3b. Resource Attributes:** AH6. Water conveyance system

**\*P4. Resources Present:**  Building  Structure  Object  Site  District  Element of District  Other:

**\*P5a. Photograph or Drawing:**



**P5b. Description of Photo:** Photo Roll 3895-1-dm (frame 42). West Wall of feature facing South-Southeast

**\*P6. Date Constructed/Age and Sources:** Circa 1893 (Barmann 1893)  
 Prehistoric  Historic  Both

**\*P7. Owner and Address:** Duke Realty Limited Partnership, 600 East 96th Street, Suite 100 Indianapolis, IN 46240

**\*P8. Recorded By:** E. Mills & A. McCausland  
 Applied EarthWorks, Inc.  
 Hemet, CA 92544

**\*P9. Date Recorded:** 7/6/2018

**\*P10. Survey Type:**  Intensive  
 Reconnaissance  Other

**Describe:** Intensive pedestrian survey (20 meter transect intervals)

**\*P11. Report Citation:** Kholood Abdo Hintzman, Annie McCausland, and Evan Mills August 2018. *Phase I Cultural Resources Assessment for the Alabama and Palmetto Project near the City of Redlands, San Bernardino County, California.* Applied EarthWorks, Inc., Hemet,

**\*Attachments:**  NONE  Location Map  Sketch Map  Continuation Sheet  
 Building, Structure, and Object Record  Archaeological Record  District Record  Linear Feature Record  
 Photograph Record  Milling Station Record  Rock Art Record  Artifact Record  
 Other (list):

Page 2 of 10

Resource Name or # AE-3895-01H

\*A1. **Dimensions:** a. **Length** 168 meters (610 feet) north/south x b. **Width** .9 meters (3 feet) (east/west)

**Method of Measurement:**  Paced  Taped  Visual estimate  Other: Trimble GPS

**Method of Determination** (check any that apply):  Artifacts  Features  Soil  Vegetation  
 Topography  Cut bank  Animal burrow  Excavation  Property boundary  
 Other (explain):

**Reliability of Determination**  High  Medium  Low Explain: Area was surveyed extensively

**Limitations** (check any that apply):  Restricted access  Paved/built over  Site limits incompletely defined  
 Disturbances  Vegetation  Other (explain): Feature slightly damaged in section (see linear feature record)

A2. **Depth:**  None  Unknown  
Method of determination: East wall of the flume is buried.

\*A3. **Human Remains:**  Present  Absent  Possible  Unknown (explain): None observed

\*A4. **Features:** This feature consists of a rectangular (cross-section) gravity-fed irrigation flume comprised of small boulders and concrete that extends on a north/south bearing. The flume is constructed of granite and quartzite boulders collected from the Santa Ana River flood plain directly to the north of the property and concrete mortar. The boulders range in size from 10 to 14 inches and are cemented into the walls of the ditch with coarse grain concrete.

\*A5. **Cultural Constituents (not associated with features):** No other constituents observed

\*A6. **Were Specimens Collected?**  No  Yes (If yes, attached Artifact Record or catalog.)

\*A7. **Site Condition:**  Good  Fair  Poor  Disturbances: The flume is damaged by heavy equipment on the north and south ends and a section in the center. The elevation of the ground surface is higher on the east side of the feature. The feature top is level with the ground surface on the east side.

\*A8. **Nearest Water (type, distance, and direction):** The Santa Ana River is located .35 miles to the north.

\*A9. **Elevation:** 1207 feet above mean sea level

A10. **Environmental Setting (vegetation, fauna, soils, geology, landform, slope, aspect, exposure, etc.):** The feature is located in the interior of an old citrus grove that was active as recently as 2007. The area is flat former agricultural land and the surface is extensively disturbed by plowing and other agricultural activities. The vegetation in the area is seasonal grasses and eucalyptus trees. The soils are silty alluvial sands deposited from the Santa Ana River in prehistory. The flume has full open exposure and no slope.

A11. **Historical Information** (full citations in A15 below):

\*A12. **Age:**  Prehistoric  Protohistoric  1542–1769  1769–1848  1848–1880  1880–1914  1914–1945  
 Post 1945  Undetermined Describe position in regional prehistoric chronology or factual historic dates if known:

A13. **Interpretations:**

A14. **Remarks:**

A15. **References:**

A16. **Photographs:** See attached Photograph Record. Photo Roll 3895-1-dm (frames 35-43)  
Original media/negatives kept at: Applied EarthWorks, Inc., Hemet, California

\*A17. **Form Prepared By:** E. Mills & A. McCausland **Date:** 7/24/2018  
**Affiliation and Address:** Applied EarthWorks, Inc., 3550 E. Florida Ave, Suite H, Hemet CA, 92544

State of California — The Resources Agency  
DEPARTMENT OF PARKS AND RECREATION  
**BUILDING, STRUCTURE, AND OBJECT RECORD**

Primary #  
HRI #/Trinomial

\*NRHP Status Code 6Z

Page 3 of 10

Resource Name or #: AE-3895-01H

**B1. Historic Name:** Flume

**B2. Common Name:** Flume

**B3. Original Use:** irrigation water conveyance      **B4. Present Use:** no longer in use

\***B5. Architectural Style:** N/A

\***B6. Construction History (construction date, alterations, and dates of alterations):** This gravity-fed irrigation flume was constructed circa 1893 as a feature of the Brown Subdivision of the Williams Tract near Redlands, CA. The flume most likely extended the entire length of the property to Palmetto Avenue.

\***B7. Moved?:**  No  Yes  Unknown      Date:      Original Location:

\***B8. Related Features:** Irrigation weir (AE-3895-02H)

**B9. a. Architect:** unknown

**b. Builder:** unknown

\***B10. Significance:** Theme: Citrus Industry      Area: San Bernardino Valley; Redlands  
Period of Significance: 1893-1950      Property Type: Agricultural      Applicable Criteria: A/1; C/3  
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)  
Frank Elwood Brown was a key figure in the development of the eastern San Bernardino Valley, the citrus industry in the valley, and the cities of Redlands and Moreno Valley. Brown brought the most crucial resource to the area—water.

Brown came to the San Bernardino valley in 1877, and settled in the small colony of Lugonia. Brown was a graduate of the Sheffield Scientific School at Yale University, and he brought big dreams with him to California (Gonzales 2006).

Upon arrival, Brown met Edward G. Judson in Lugonia and they went into the citrus business together in 1880. With their success as citrus growers and distributors, their vision grew. Together, they decided to develop a new agricultural colony in the area with a sustainable water source and system, the Red Lands Colony (Gonzales 2006).

Brown and Judson bought over 4,000 acres of land and the Red Lands Colony was incorporated in 1881. To provide water temporarily, they bought 50 shares of water from the owners of the South Fork ditch, which provided water to Lugonia drawn from the Santa Ana River. To transport the water to Red Lands, Brown and Judson constructed a 6-mile canal from the South Fork ditch to a new reservoir. Water reservoirs allowed water from the wet months to be harnessed and saved for the dry months (Gonzales 2006). As stated in a Scribner's Magazine article from 1890,

...the plan of water storage is to impound this water as it runs to waste in the season of flood and use it in the season of drought. Select the proper valleys for water-basins, close their outlets with dams, store great lakes of water when the mountain-snows melt, and then let it out slowly and at will through flumes and ditches to the lands below—this is the essence of the new idea [Gonzales 2006].

Brown embraced this idea and planned for the construction of a new water reservoir and dam in Bear Valley.

Brown and Judson's vision for a new water source and system was achieved in 1883 with the founding of the Bear Valley Land and Water Company, later known as the Bear Valley Irrigation Company. A new state of the art dam and channel was designed by Brown in 1884 and water from the Bear Valley reservoir made its way to the Red Lands Colony in 1885. Plentiful water attracted new settlers to the colony. The phenomenal population growth of the colony would have not been possible without the Bear Valley reservoir (Gonzales 2006).

Brown continued buying and developing agricultural land in the area, including a subdivision of the Williams Tract No. 1 located northwest of Redlands in 1893 (Barmann 1893). The Williams Tract was founded by land proprietor Henry L. Williams in 1887 in a small community known then as Gladysta.

Citrus farming began in the Redlands area in the late nineteenth century and remained prominent until the late 1950s (California Department of Transportation 2007). A Southern Pacific electric railroad spur, south of San Bernardino Avenue, was developed in 1903 to service the citrus packing houses in the area including Sunkist and Crown Jewel. Smudge pot oil was also distributed via the train (Lancaster 2013). Gravity-fed irrigation was the standard practice in southern California citrus farming from the 1880s until the drip system was introduced in the 1970s (Sanka 2006).

**\*B10. Significance Continued:**

Beginning in the 1880s, gravity-fed irrigation systems were constructed within citrus groves across San Bernardino Valley. The long and subtle slope of the valley from both north and south to the center made gravity-fed irrigation systems ideal for irrigation (California Department of Transportation et al. 2000). These systems distributed water using networks of underground cast-iron pipes, flow-control boxes, and gravity-fed irrigation flumes made of local rocks with cement mortar (California Department of Transportation et al. 2000). This state of the art water system for the area was highlighted on the Williams Tract promotional map as well as the 1893 San Bernardino Irrigation Map. The Williams Tract Map declared that property owners could raise the best oranges in the state on the land and the oldest orange groves in Redlands were within one mile (William c. 1890). With an abundance of water, Brown's subdivision was perfect for the largest and fastest growing industry in the region, citrus farming.

The Project area includes three parcels within Block 1 Lots 1 and 2 and Block 2 Lots 1,2,3,6, and 7 of the Brown Subdivision of Williams Tract No. 1. Between 1895 and 1951, the following individuals, listed in no particular order, owned portions of the subject lots: Melvin R. Gay, Geo. W. Mead, B.W Cave, Belle Michaeltree, Frank E. Brown, 1<sup>st</sup> National Bank of Redlands, Hannah E. Irvin, W.K. Lee, C.H Park, Florence C. & Lester W. Finlay, J.D. Langford & Co., Will W. De Hart, Ruth McNair, Maude Armstrong, Gladys L. Pate, Charles S. Lombard, W.M. & Clara Henderson, Ellis G. Grace, B. Kennedy, Savings Bank, J. Richard Lane, Harry N. & Bertha F. Morse, Ino. W. Thayer, and J.H. Maggie Wilkes. All owners likely maintained citrus groves on their properties. Ownership of these lots changed throughout the twentieth century; however, the land use did not change. Historical aerial images show that the Project area contained an orchard from at least 1930 and property tree values were documented beginning in 1923 (San Bernardino County Assessor Books; UCSB 2018). The 1954 edition of the USGS Redlands quad map shows the existence of citrus groves and farms within the Project area as well as on the surrounding properties. The citrus groves and farms were demolished around 2007 (NETR online 2018).

Citrus production began in the Redlands area in the late nineteenth century and remained prominent until the late 1950s (City of Redlands 2018). While ownership of the subject property changed throughout the twentieth century, the land use did not change. This property was developed as an agricultural lot in the late 1880s as a part of Williams Tract No.1. In 1893 Frank Brown subdivided the Williams Tract No. 1, and these properties became Lots within Block 1 and 2 of the Brown Subdivision. Frank Brown was the founder and head engineer of the Bear Valley Land and Water Company. He installed gravity-fed irrigation systems on his Lots to service the growing citrus industry. The water for this system came from the Bear Valley Land and Water Company's new state of the art reservoir in Bear Valley, now known as Big Bear Lake. This sustainable water source brought growth and prosperity to the Redlands region, resulting in a prosperous citrus industry, and gravity-fed irrigation became the standard practice in southern California orchard production until the drip system was introduced in the 1970s (Gustafson 1980; Taylor 2006). Several land tracts in the area were developed in the 1890s due to this sustainable water source. These land tracts, including the Williams Tract, became extensive citrus groves which were owned by local families and entrepreneurs. Historical aerial images confirmed that the Project area contained an orchard by 1930 (UCSB 2018). The 1954 edition of the USGS Redlands topographic quadrangle map shows a citrus grove on the property as well as on the surrounding properties. Thus, it appears this property was a citrus grove from the 1890s until circa 2007, when the trees were removed, explaining why the historic gravity-fed irrigation system is still extant on the property.

The flume was constructed circa 1893, within the Frank Brown subdivision of Williams Tract No. 1. The flume has a direct association with irrigation practices in San Bernardino Valley and development of the citrus industry in Redlands, events that were important in local and regional history. The flume is significant under CRHR Criterion 1, with the period of significance from 1893, when the Brown Subdivision was created until 1950, the end of the citrus industry boom. Ownership of the properties changed throughout the late nineteenth and twentieth centuries. Past owners include local families, entrepreneurs, and banks who wanted to make a profit in the lucrative citrus industry. The most historically significant property owner was Frank Brown; however, other historic resources in the region, including the old Bear Valley Dam, listed as a California Historical Landmark, better convey Brown's historical contribution to the region. With no direct association with any other important historical persons, the site is not considered significant under CRHR Criterion 2. The flume embodies the distinctive design and construction characteristics of a gravity-fed irrigation flume from the turn of the 20<sup>th</sup> century, and is significant under CRHR Criterion 3. This gravity-flow irrigation flume does not appear to meet CRHR Criterion 4 individually for their potential to provide information important in history or prehistory. However, the larger Bear Valley Land and Water Company water system, the Williams Tract irrigation system, and adjoining orchards, with which this flume is associated, could potentially be eligible under Criterion 4. The extent of these systems is not fully known and little

documentation on the layout of the systems was found during current historic research. Therefore, further investigation and study of the remaining physical elements of these systems have the potential to yield new information about the systems and their contribution to the historic Redlands Citrus industry. Finally, the flume may be a contributing element of a larger historic citrus district in Redlands. Several gravity-fed irrigation systems, oil tanks, citrus packing houses, and electrical railways have been documented within a 1-mile of the subject property. Additional research and studies are needed to investigate the extent, significance, and integrity of this potential historic district.

**B11. Additional Resource Attributes (list attributes and codes):**

**\*B12. References:**

Barmann, A.

1893 Browns Subdivision Map. For reference at the San Bernardino County Recorder's Office.

California Department of Transportation

2007 *A Historical Context and Archaeological Research Design for Agricultural Properties in California*.  
Sacramento, California.

City of Redlands

2018 Citrus Preservation. Website. Accessed January 8, 2018. [http://www.cityofredlands.org/city-hall/departments/quality\\_of\\_life/citrus\\_preservation/](http://www.cityofredlands.org/city-hall/departments/quality_of_life/citrus_preservation/)

Gonzales, Nathan

2006 *Bear Valley Irrigation Company*. Bacchus Press, USA.

Gustafson, Don

1981 *Drip Irrigation of Citrus-Panel Drip Irrigation of Citrus in California*. Accessed online on January 29, [http://irrec.ifas.ufl.edu/flcitrus/pdfs/short\\_course\\_and\\_workshop/secondinternationalcitrus/Gustafson-Drip\\_Irrigation.pdf](http://irrec.ifas.ufl.edu/flcitrus/pdfs/short_course_and_workshop/secondinternationalcitrus/Gustafson-Drip_Irrigation.pdf)

Lancaster, James E. and Bill Messecar

2013 *Historic Packing Houses and Other Industrial Structures in Southern California*.  
Website, accessed January 25, 2018. [http://coastdaylight.com/ljames1/scph\\_sb\\_redlands.html](http://coastdaylight.com/ljames1/scph_sb_redlands.html)

Lippincott, J.B.

1893 *Map of San Bernardino, Redlands, and Vicinity Showing Location of Irrigated Lands*.

*Los Angeles Herald*

1887 *Gladysta*. *Los Angeles Herald*, October 10, 1887. Available online through the California Digital Newspaper Collection.

Los Angeles Public Library Photo Collection

1902 Irrigating oranges. Source: Calisphere Date of access: January 25 2018 20:32 Permalink:  
<https://calisphere.org/item/234202ffc0ba1dacb0333f855f3ed89a/>

Mission Brown Subdivision of H.L. Williams Tract 1 Lot Books

1895-1903, 1904-1907, 1908-1912, 1913-1917, 1923-1928, 1929-1934, 1945-1939, 1940-1944, 1946-1951. On reference at the San Bernardino County Archives.

NETR online

2018 <http://www.historicaerials.com/viewer>. Accessed January 2, 2018.

San Bernardino County Office of the Assessor

2018 Ownership History Report for Parcel 0292-043-07-0000

Sanka, J.

State of California — The Resources Agency  
DEPARTMENT OF PARKS AND RECREATION  
**BUILDING, STRUCTURE, AND OBJECT RECORD**

Primary #  
HRI #/Trinomial

\*NRHP Status Code 6Z

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Resource Name or #: AE-3895-01H

2006 DPR 523 Site form 36-012852, dated August 8 and 9, 2006. On file, South Central Coastal Information Center, California State University, Fullerton.

Tang, Bai "Tom"

2000 DPR Site Record for CA-SBR-9991 H. Dated July 13, 2000. On File at the San Bernardino Archaeological Information Center.

Taylor, Laurie

2006 DPR 523 Site form 36-012468, dated June 26, 2006. On file, South Central Coastal Information Center, California State University, Fullerton.

United States Geological Survey

1899, 1901, 1954, 1967, 1975, 1980, 1988, 1996 *Redlands, California, Quadrangle Map, 7-minute series*. U.S. Geological Survey.

William, Henry L.

1890s c. *Williams Tract Map*. On file at the Smiley Library Heritage Room.

**B13. Remarks:**

\*B14. **Evaluator:** Annie McCausland

**Date of Evaluation:** 08/02/18

This space reserved for official comments.

Page 7 of 10

Resource Name or #: AE-3895-1H

**L1. Historic and/or Common Name:** Gravity-fed irrigation flume

**L2a. Portion Described:**  Entire Resource  Segment  Point Observation **Designation:**

- b. Location of point or segment: Southern terminus at UTM 480478mE / 3771901mN  
Northern terminus at UTM 480479mE / 3772087mN  
Datum Location at UTM 480479mE / 3772000mN

**L3. Description:** This feature consists of a rectangular (cross-section) gravity-fed irrigation flume composed of small boulders and concrete that extends on a north/south bearing. The flume is constructed of granite and quartzite boulders collected from the Santa Ana River flood plain directly to the north of the property and concrete mortar. The boulders range in size from 10 to 14 inches and are cemented into the walls of the flume with coarse grain concrete.

**L4. Dimensions:**

- a. **Top Width:** 3 feet  
b. **Bottom Width:** 25 inches  
c. **Height or Depth:** maximum of 14 inches  
d. **Length of Segment:** 186 meters (610 feet)

**L4e. Sketch or Cross Section**  attached **Facing:**  
 none

**L5. Associated Resources:** AE-3895-02H, irrigation weir in the southwest corner of the property.

**L6. Setting:** The feature is located in the interior of an old citrus grove that was active as recently as 2007. The area is flat former agricultural land and the surface is extensively disturbed by plowing and other agricultural activities. The vegetation in the area is seasonal grasses and eucalyptus trees. The soils are silty alluvial sands deposited from the Santa Ana River in prehistory. The flume has full open exposure and no slope.

**L7. Integrity Considerations:** The flume was damaged by heavy equipment on the north and south ends and a section in the center. The elevation of the ground surface is higher on the east side of the feature. The feature top is level with the ground surface on the east side.

**L8a. Photo, Map, or Drawing:**



**L8b. Description of Photo, Map, or Drawing:** view of feature from south end looking north. Photo Roll 3895-1-dm, frame 36.

**L9. Remarks:** Fair condition

**L10. Form Prepared By:** E. Mills & A. McCausland

**L11. Date:** 7/24/2018

**State of California — The Resources Agency  
DEPARTMENT OF PARKS AND RECREATION  
PHOTOGRAPH RECORD**

**Primary #  
HRI #/Trinomial**

Page 8 of 10

Resource Name or # AE-3895-01H

Year: 2018

Camera Type: Panasonic Lumix

Roll Number: 3895-1-dm

Image Type:  Digital

35mm B&W film

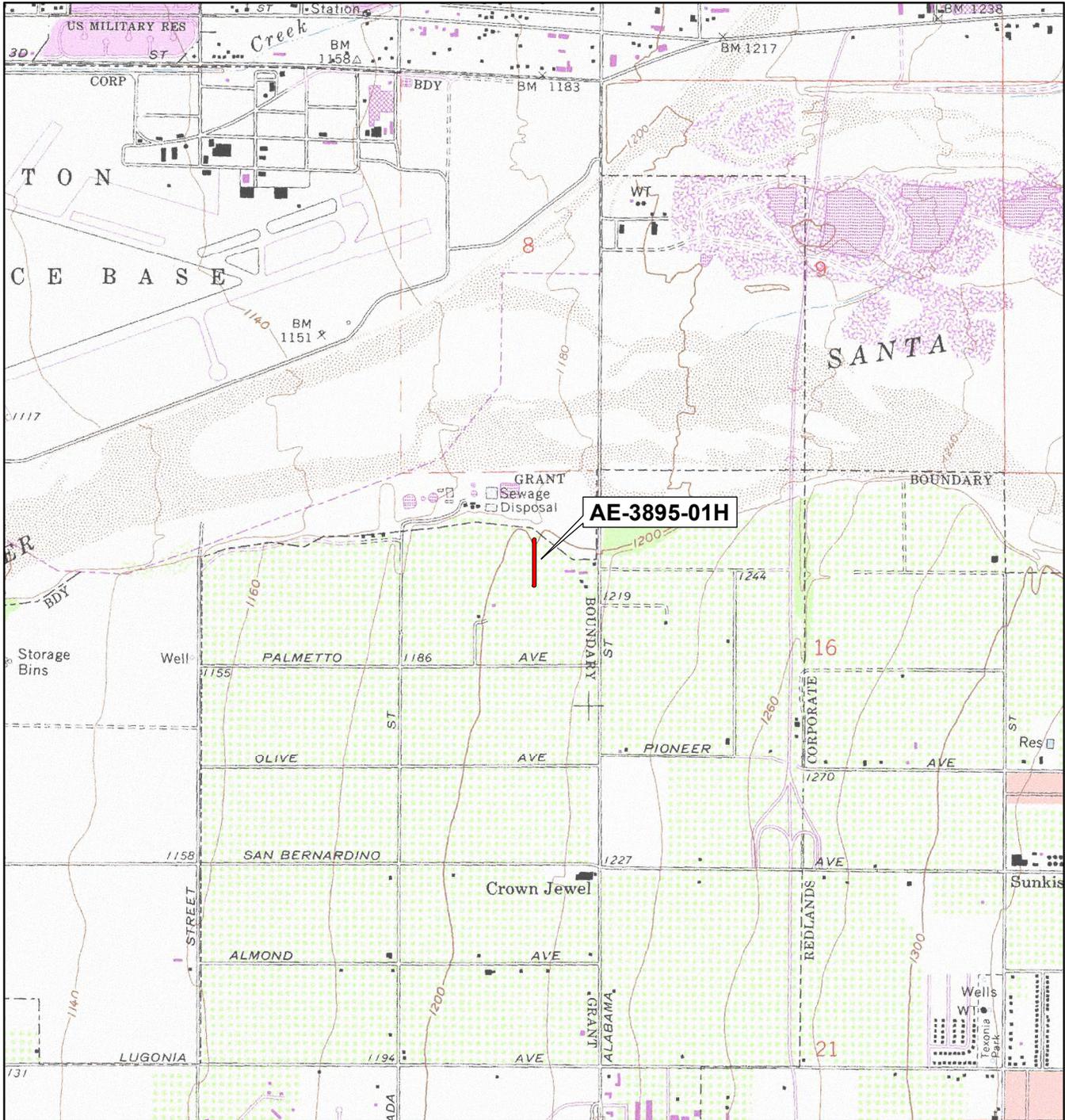
35mm Color Print film

35mm Color Slide film

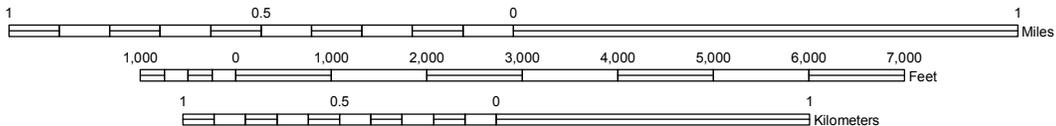
Photographer: E. Mills

Media Stored at: Applied EarthWorks, Inc., Hemet, CA

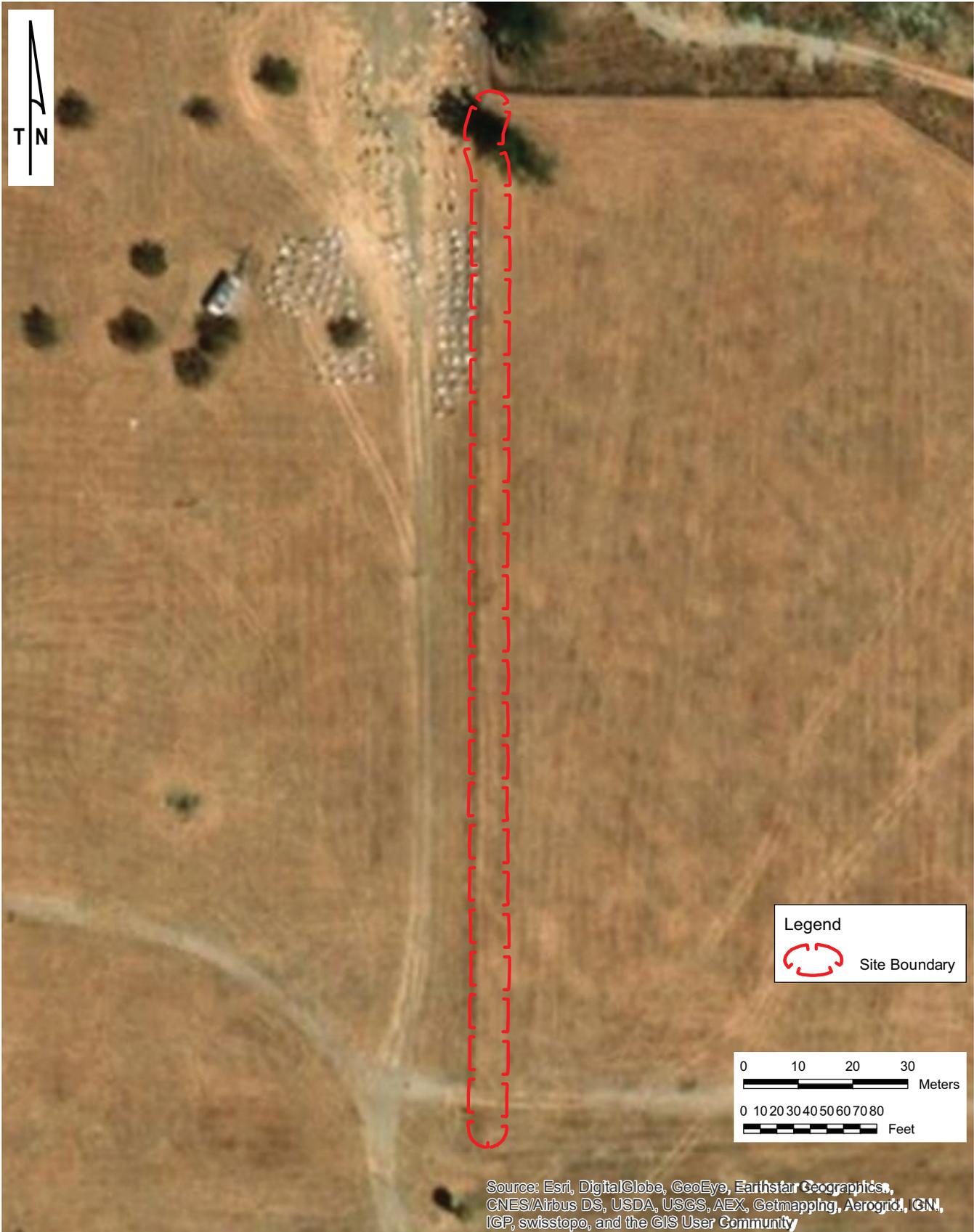
Mo.	Day	Time	Exp.	Subject	Facing
7	6	0827	035	3895-01H; Feature 1 profile (south end).	E
7	6	0828	036	3895-01H; overview from south end.	N
7	6	0828	037	3895-01H; wall detail.	NE
7	6	0833	038	3895-01H; north end overview.	S
7	6	0834	039	3895-01H; trees at north end.	NNE
7	6	0834	040	3895-01H; overview from north end.	S
7	6	0835	041	3895-01H; Feature 1 rock wall, detail.	ESE
7	6	0835	042	3895-01H; Feature 1, west wall of feature.	SSE
7	6	0835	043	3895-01H; Feature 1, wall detail.	E



SCALE 1:24,000



TRUE NORTH



State of California — The Resources Agency  
 DEPARTMENT OF PARKS AND RECREATION  
**PRIMARY RECORD**

Primary #  
 HRI #  
 Trinomial  
 NRHP Status Code 6Z

Other Listings  
 Review Code

Reviewer

Date

Page 1 of 10

Resource Name or # AE-3895-02H

**P1. Other Identifier:** Weir

**\*P2. Location: a. County:** San Bernardino

**Not for Publication**

**Unrestricted**

**b. USGS 7.5' Quad:** Redlands  
 Bernardino Land Grant

**Date:** 1978 (Photo Revised 1980) T 1S, R 3W; ¼ of ¼ of Section San  
 SB B.M.

**c. Address:**

**d. UTM:** NAD 83, Zone 11; 480338 mE / 3771629 mN

**e. Other Locational Data:** From Interstate 10 take exit Alabama Street north 1.4 miles. The pump station is located in the southwest portion of the large parcel on the left of Alabama Street. APN #: 029204147

**\*P3a. Description:** This historic site consists of an irrigation weir. The feature is built of concrete, brick, and various pipes, crank valves, and fittings. The feature is located in the southwest corner of an old citrus grove that was in use as recently as 2007. This weir, along with an irrigation flume (AE-3895-01H), are the only remnants of the historic irrigation system on the property. See Archaeological record for more detail on the feature.

**\*P3b. Resource Attributes:** AH6. Water conveyance system

**\*P4. Resources Present:**  Building  Structure  Object  Site  District  Element of District  Other:

**\*P5a. Photograph or Drawing:**



**P5b. Description of Photo:** Photo Roll 3895-1-dm, frame 44. Overview of feature facing south

**\*P6. Date Constructed/Age and Sources:**  
 Circa 1893 (Barmann 1893)  
 Prehistoric  Historic  Both

**\*P7. Owner and Address:** Duke Realty Limited Partnership, 600 East 96th Street, Suite 100 Indianapolis, IN 46240

**\*P8. Recorded By:** E. Mills & A. McCausland  
 Applied EarthWorks, Inc.  
 Hemet, CA 92544

**\*P9. Date Recorded:** 7/6/2018

**\*P10. Survey Type:**  Intensive  
 Reconnaissance  Other

**Describe:** Intensive pedestrian survey (20 meter transect intervals)

**\*P11. Report Citation:** Joan George, Kholood Abdo Hintzman, Annie McCausland and Evan Mills August 2018. *Phase I Cultural Resources Assessment for the Alabama and Palmetto Project near the City of Redlands, San Bernardino County, California.* Applied EarthWorks, Inc., Hemet,

**\*Attachments:**  NONE

Building, Structure, and Object Record  
 Photograph Record

Location Map  
 Archaeological Record  
 Milling Station Record  
 Other (list):

Sketch Map  
 District Record  
 Rock Art Record

Continuation Sheet  
 Linear Feature Record  
 Artifact Record

\*A1. **Dimensions:** a. Length 8 feet (east/west) x 6 feet (north/south) b. Width

**Method of Measurement:**  Paced  Taped  Visual estimate  Other: Trimble GPS

**Method of Determination** (check any that apply):  Artifacts  Features  Soil  Vegetation  
 Topography  Cut bank  Animal burrow  Excavation  Property boundary  
 Other (explain):

**Reliability of Determination:**  High  Medium  Low Explain: Area was extensively surveyed.

**Limitations** (check any that apply):  Restricted access  Paved/built over  Site limits incompletely defined  
 Disturbances  Vegetation  Other (explain): The area is overgrown and littered with modern refuse.

A2. **Depth:**  None  Unknown

Method of determination: Likely due to the feature's function of underground irrigation

\*A3. **Human Remains:**  Present  Absent  Possible  Unknown (explain): None observed

\*A4. **Features:** The feature consists of a historic gravity-fed irrigation weir that is built of concrete, bricks, cinder blocks, galvanized steel pipe, crank valve and associated pipe remnants. The exterior dimensions are 109 inches (east/west) by 49 inches (north/south) on the west side by 67 inches (north/south) on the east side. The northeast side of the feature has a half moon shaped, round wall that is 36 inches in diameter on the exterior and 30 inches in diameter on the interior with a height of 11 inches off the current ground surface. The east wall is 14 inches tall from the current ground surface. The west wall is 8 inches tall from the current ground surface. The northern wall is 12 inches tall from the current ground surface. The southern wall is 32 inches tall from the current ground surface. The interior dimensions are 34 inches (north/south) by 91 inches (east/west) with a maximum depth of 21 inches. There is a ramp or flume off the north wall that is sloped into the ground in a northerly direction. There is a 41 inch tall crank valve located on the west side of the feature, presumably for controlling flow volume. The piping system extends south of the feature and is incorporated into modern irrigation systems. The feature is in a state of disrepair and no longer functional.

\*A5. **Cultural Constituents (not associated with features):** A gravity-fed irrigation flume is also extant on the adjacent parcel to the north (AE-3895-01H)

\*A6. **Were Specimens Collected?**  No  Yes (If yes, attached Artifact Record or catalog.)

\*A7. **Site Condition:**  Good  Fair  Poor  Disturbances: Feature is degrading

\*A8. **Nearest Water (type, distance, and direction):** The Santa Ana River is located .4 miles to the north.

\*A9. **Elevation:** 1205 feet above mean sea level

A10. **Environmental Setting (vegetation, fauna, soils, geology, landform, slope, aspect, exposure, etc.):** The feature is located in the southwest corner of an old citrus grove that was active as recently as 2007. The area is flat former agricultural land and the surface is extensively disturbed by plowing and other agricultural activities. The vegetation in the area is seasonal grasses, eucalyptus trees, and extensive overgrown weeds. The soils are silty alluvial sands deposited from the Santa Ana River in prehistory. The feature has full open exposure and no slope.

A11. **Historical Information** (full citations in A15 below):

\*A12. **Age:**  Prehistoric  Protohistoric  1542–1769  1769–1848  1848–1880  1880–1914  1914–1945  
 Post 1945  Undetermined Describe position in regional prehistoric chronology or factual historic dates if known:

A13. **Interpretations:** This feature is likely the original weir for the historic gravity-flow irrigation system. See the attached BSO for the full historic context and evaluation.

A14. **Remarks:**

A15. **References:**

A16. **Photographs:** See attached Photograph Record. Photo Roll 3895-1-dm, frames 44-56.  
Original media/negatives kept at: Applied EarthWorks, Inc., Hemet, California

\*A17. Form Prepared By: E. Mills & A. McCausland

Date: 7/24/2018

Affiliation and Address: Applied EarthWorks, Inc., 133 N. 3550 E. Florida Ave, Suite H, Hemet CA, 92544



Photo Roll 3895-1-dm Frame 52. Shot of the crank valve facing south.



**\*B10. Significance Continued:**

using networks of underground cast-iron pipes, flow-control boxes, and gravity-fed irrigation flumes made of local rocks with cement mortar (California Department of Transportation et al. 2000). This state of the art water system for the area was highlighted on the Williams Tract promotional map as well as the 1893 San Bernardino Irrigation Map. The Williams Tract Map declared that property owners could raise the best oranges in the state on the land and the oldest orange groves in Redlands were within one mile (William c. 1890). With an abundance of water, Brown's subdivision was perfect for the largest and fastest growing industry in the region, citrus farming.

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Citrus production began in the Redlands area in the late nineteenth century and remained prominent until the late 1950s (City of Redlands 2018). While ownership of the subject property changed throughout the twentieth century, the land use did not change. This property was developed as an agricultural lot in the late 1880s as a part of Williams Tract No.1. In 1893 Frank Brown subdivided the Williams Tract No. 1, and these properties became Lots within Block 1 and 2 of the Brown Subdivision. Frank Brown was the founder and head engineer of the Bear Valley Land and Water Company. He installed gravity-fed irrigation systems on his Lots to service the growing citrus industry. The water for this system came from the Bear Valley Land and Water Company's new state of the art reservoir in Bear Valley, now known as Big Bear Lake. This sustainable water source brought growth and prosperity to the Redlands region, resulting in a prosperous citrus industry, and gravity-fed irrigation became the standard practice in southern California orchard production until the drip system was introduced in the 1970s (Gustafson 1980; Taylor 2006). Several land tracts in the area were developed in the 1890s due to this sustainable water source. These land tracts, including the Williams Tract, became extensive citrus groves which were owned by local families and entrepreneurs. Historical aerial images confirmed that the Project area contained an orchard by 1930 (UCSB 2018). The 1954 edition of the USGS Redlands topographic quadrangle map shows a citrus grove on the property as well as on the surrounding properties. Thus, it appears this property was a citrus grove from the 1890s until circa 2007, when the trees were removed, explaining why the historic gravity-fed irrigation system is still extant on the property.

The weir was constructed circa 1893, within the Frank Brown subdivision of Williams Tract No. 1. The weir has a direct association with irrigation practices in San Bernardino Valley and development of the citrus industry in Redlands, events that were important in local and regional history. The weir is significant under CRHR Criterion 1, with the period of significance from 1893, when the Brown Subdivision was created until 1950, the end of the citrus industry boom. Ownership of the properties changed throughout the late nineteenth and twentieth centuries. Past owners include local families, entrepreneurs, and banks who wanted to make a profit in the lucrative citrus industry. The most historically significant property owner was Frank Brown; however, other historic resources in the region, including the old Bear Valley Dam, listed as a California Historical Landmark, better convey Brown's historical contribution to the region. With no direct association with any other important historical persons, the property is not considered significant under CRHR Criterion 2. The weir embodies the distinctive design and construction characteristics of a gravity-fed irrigation weir from the turn of the 20<sup>th</sup> century, and is significant under CRHR Criterion 3. This gravity-flow irrigation weir does not appear to meet CRHR Criterion 4 individually for its potential to provide information important in history or prehistory. However, the larger Bear Valley Land and Water Company water system, the Williams Tract irrigation system, and adjoining orchards, with which this flume is associated, could potentially be eligible under Criterion 4. The extent of these systems is not fully known and little documentation on the layout of the systems was found during current historic research. Therefore, further investigation and study of the remaining physical elements of these systems have the potential to yield new information about the systems and their contribution to the historic Redlands Citrus industry. Finally, the weir may

be a contributing element of a larger historic citrus district in Redlands. Several gravity-fed irrigation systems, oil tanks, citrus packing houses, and electrical railways have been documented within a 1-mile of the subject property. Additional research and studies are needed to investigate the extent, significance, and integrity of this potential historic district.

**B11. Additional Resource Attributes (list attributes and codes):**

**\*B12. References:**

Barmann, A.

1893 Browns Subdivision Map. For reference at the San Bernardino County Recorder's Office.

California Department of Transportation

2007 *A Historical Context and Archaeological Research Design for Agricultural Properties in California.* Sacramento, California.

California Department of Transportation and JRP Historical Consulting Services

2000 *Water Conveyance Systems in California.* Sacramento, California

City of Redlands

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State of California — The Resources Agency  
DEPARTMENT OF PARKS AND RECREATION  
**BUILDING, STRUCTURE, AND OBJECT RECORD**

Primary #  
HRI #/Trinomial

\*NRHP Status Code 6Z

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Resource Name or #: AE-3895-02H

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**B13. Remarks:**

\***B14. Evaluator:** Annie McCausland

**Date of Evaluation:** 08/02/18

This space reserved for official comments.

**State of California — The Resources Agency  
DEPARTMENT OF PARKS AND RECREATION  
PHOTOGRAPH RECORD**

**Primary #  
HRI #/Trinomial**

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Resource Name or # AE-3895-02H

Year: 2018

Camera Type: Panasonic Lumix

Roll Number: 3895-1-dm

Image Type:  Digital

35mm B&W film

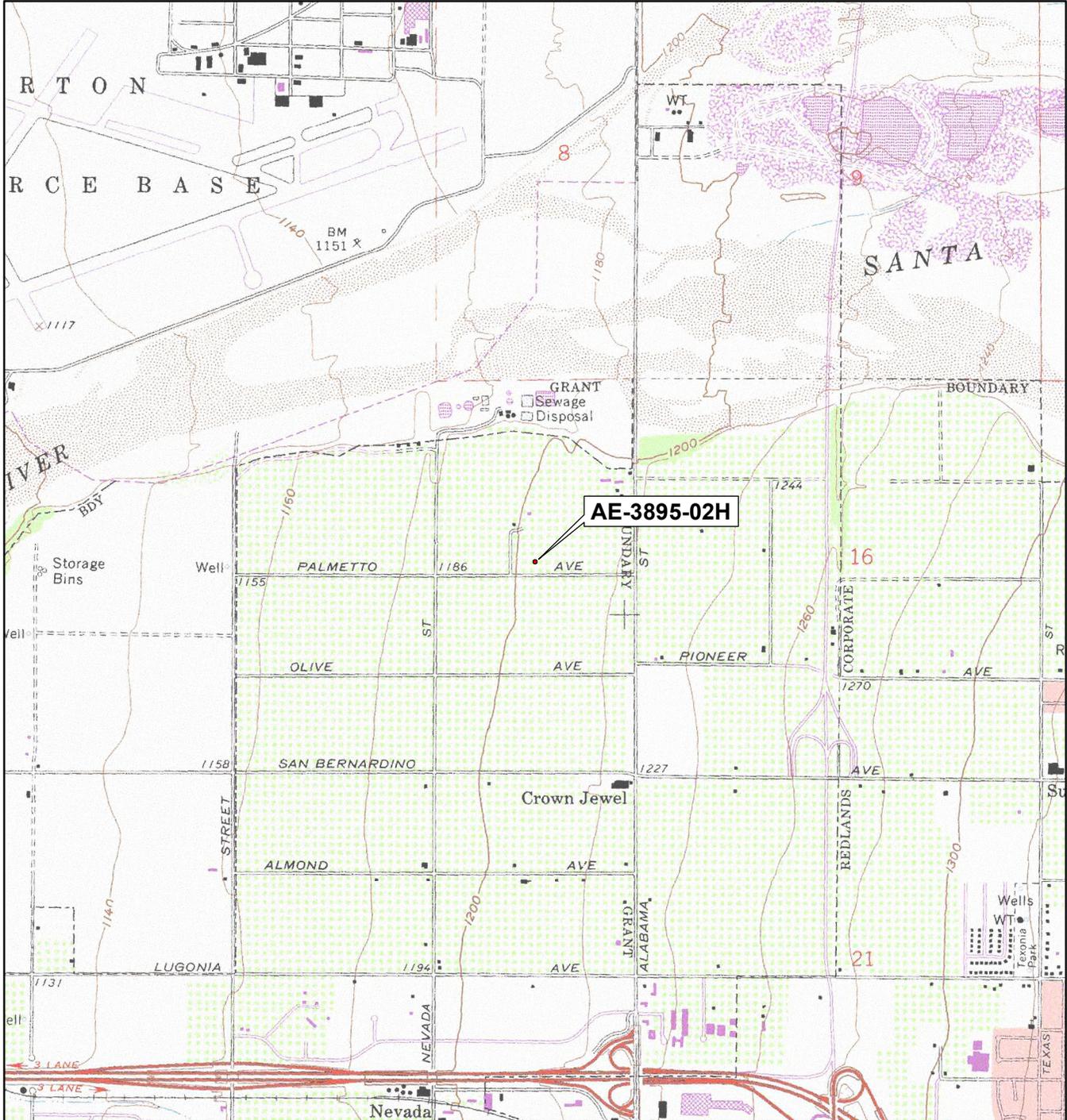
35mm Color Print film

35mm Color Slide film

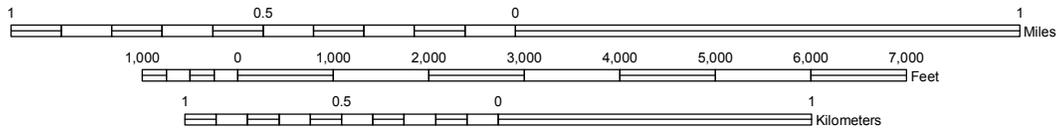
Photographer: E. Mills

Media Stored at: Applied EarthWorks, Inc., Hemet, CA

Mo.	Day	Time	Exp.	Subject	Facing
7	6	0920	044	3895-02H; Feature 1 overview.	S
7	6	0920	045	3895-02H; Feature 1, overview of crank valve.	S
7	6	0920	046	3895-02H; Feature 1, overview of round pipe housing.	S
7	6	0921	047 & 048	3895-02H; Feature 1, overviews from east side.	W, WNW
7	6	0921	049	3895-02H; Feature 1, overview from south.	N
7	6	0921	050	3895-02H; Feature 1, overview from southwest.	NE
7	6	0921	051	3895-02H; Feature 1, overview from west side.	ESE
7	6	0922	052	3895-02H; Feature 1, crank valve.	S
7	6	0922	053 & 054	3895-02H; Feature 1, crank valve.	Detail
7	6	0922	055	3895-02H; Feature 1, crank valve.	S
7	6	0922	056	3895-02H; Feature 1 overview.	SW



SCALE 1:24,000



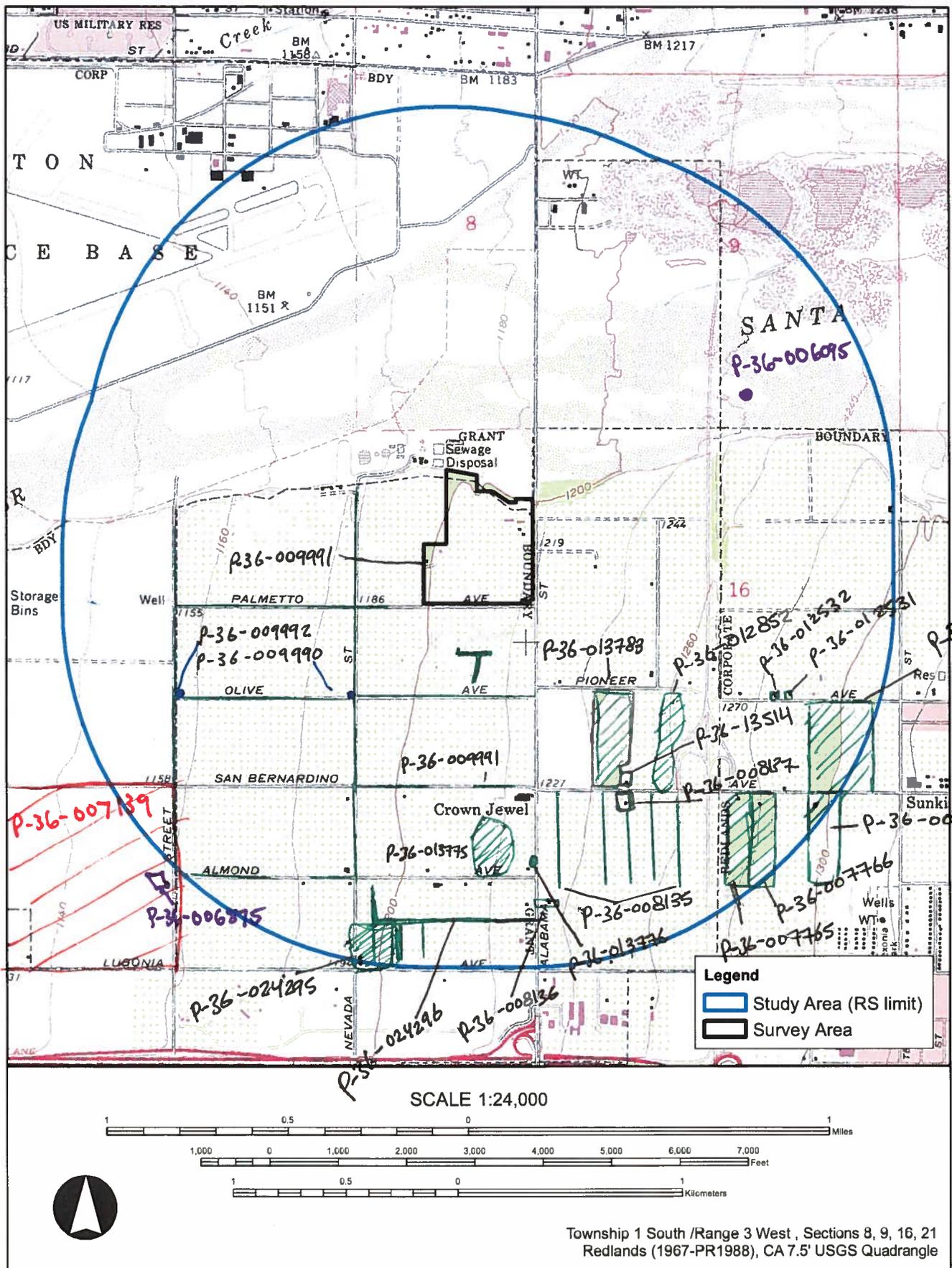
TRUE NORTH



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

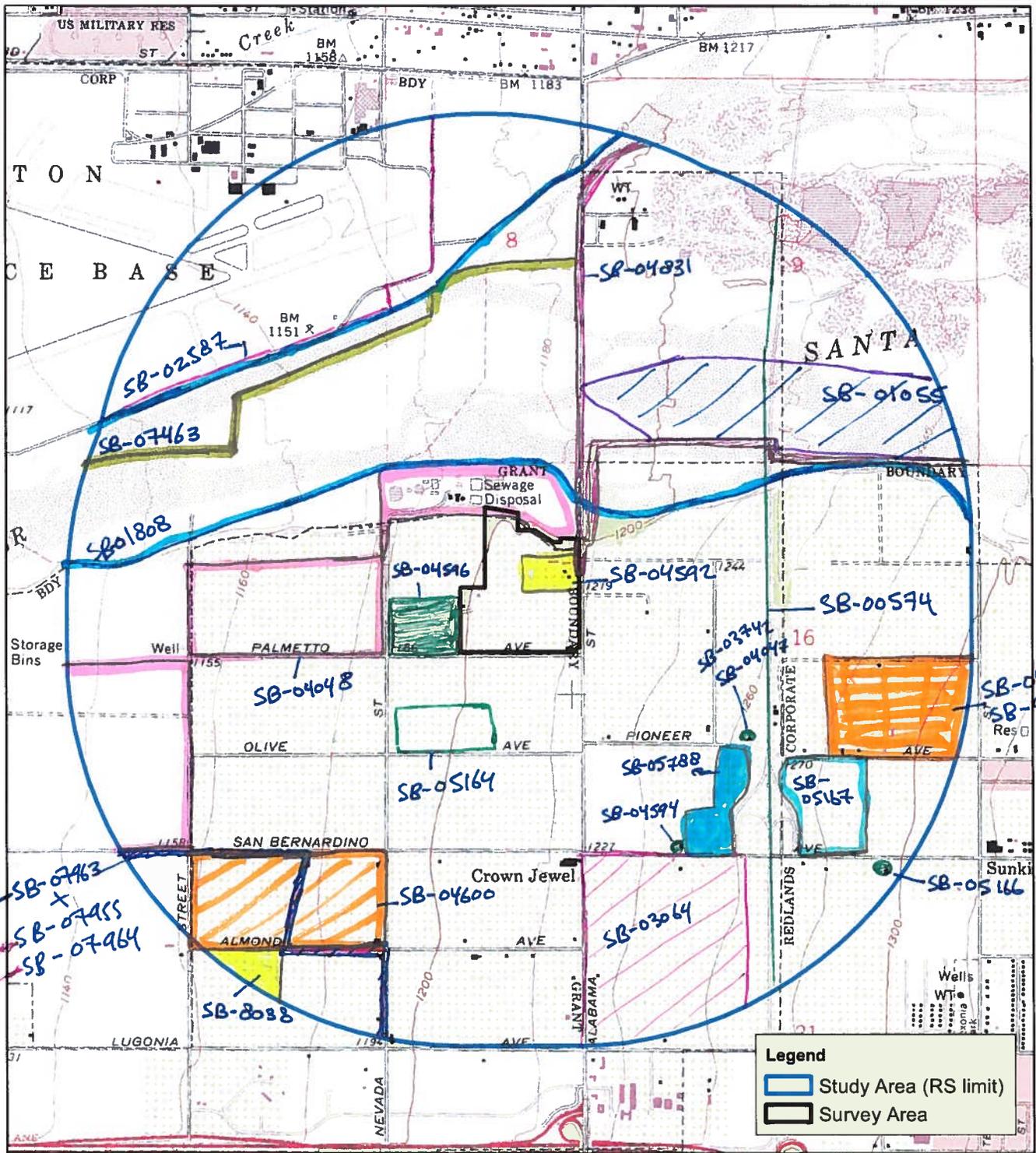
## **APPENDIX C**

### **Confidential Records Search Maps**



Records Search location map for the *Webb-Duke-Alabama Street and Palmetto Avenue Project-AE 3895*.

*Resources*



SCALE 1:24,000

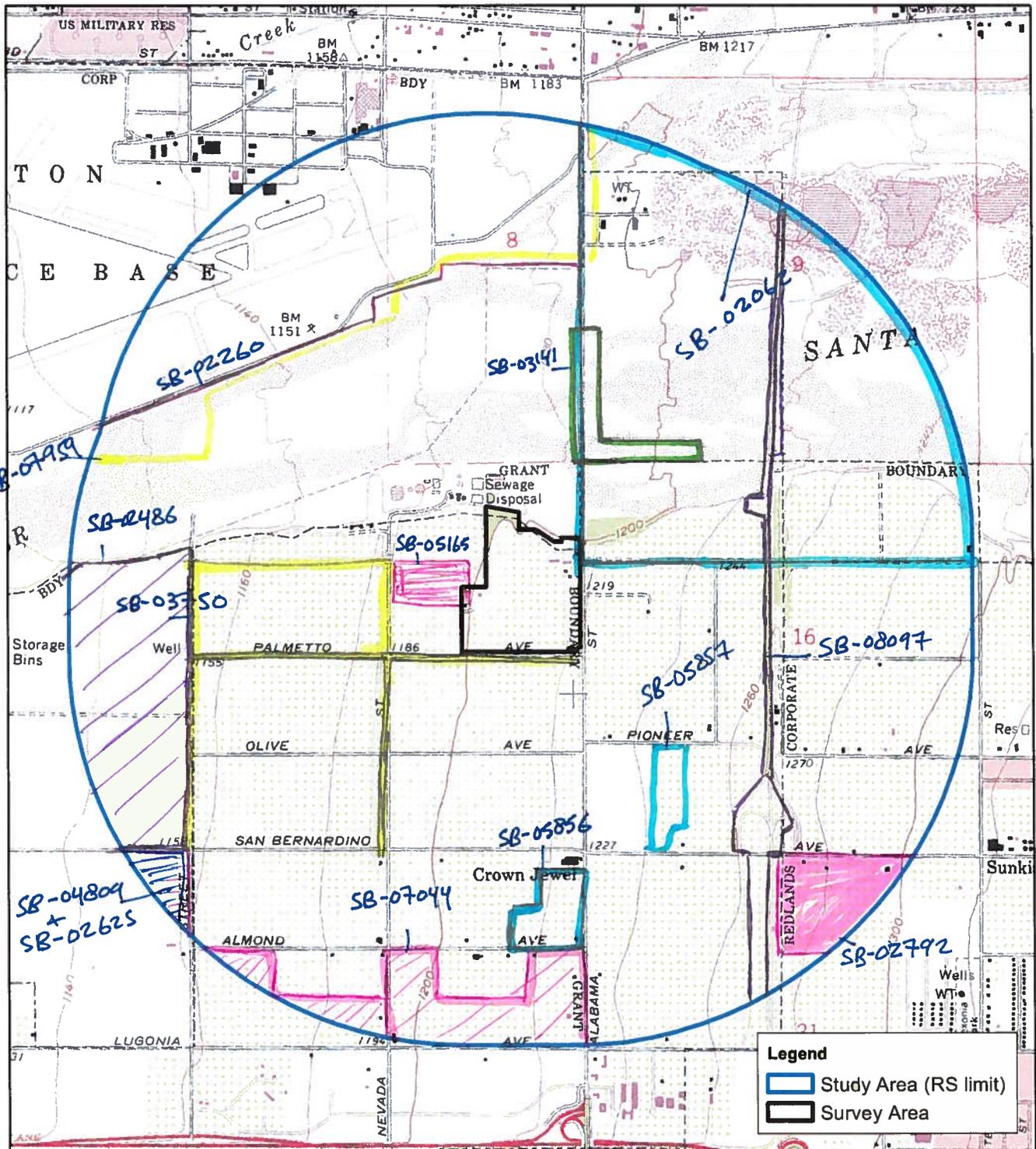
1 0.5 0 1 Miles  
1,000 0 1,000 2,000 3,000 4,000 5,000 6,000 7,000 Feet

1 0.5 0 1 Kilometers

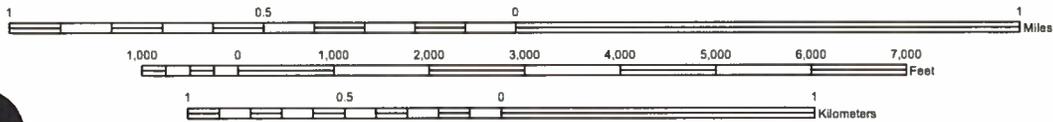
Township 1 South /Range 3 West , Sections 8, 9, 16, 21  
Redlands (1967-PR1988), CA 7.5' USGS Quadrangle

Records Search location/map for the Webb-Duke-Alabama Street and Palmetto Avenue Project-AE 3895.

24 x reports within the project area: SB-04592, SB-04048  
within 1/2 mile



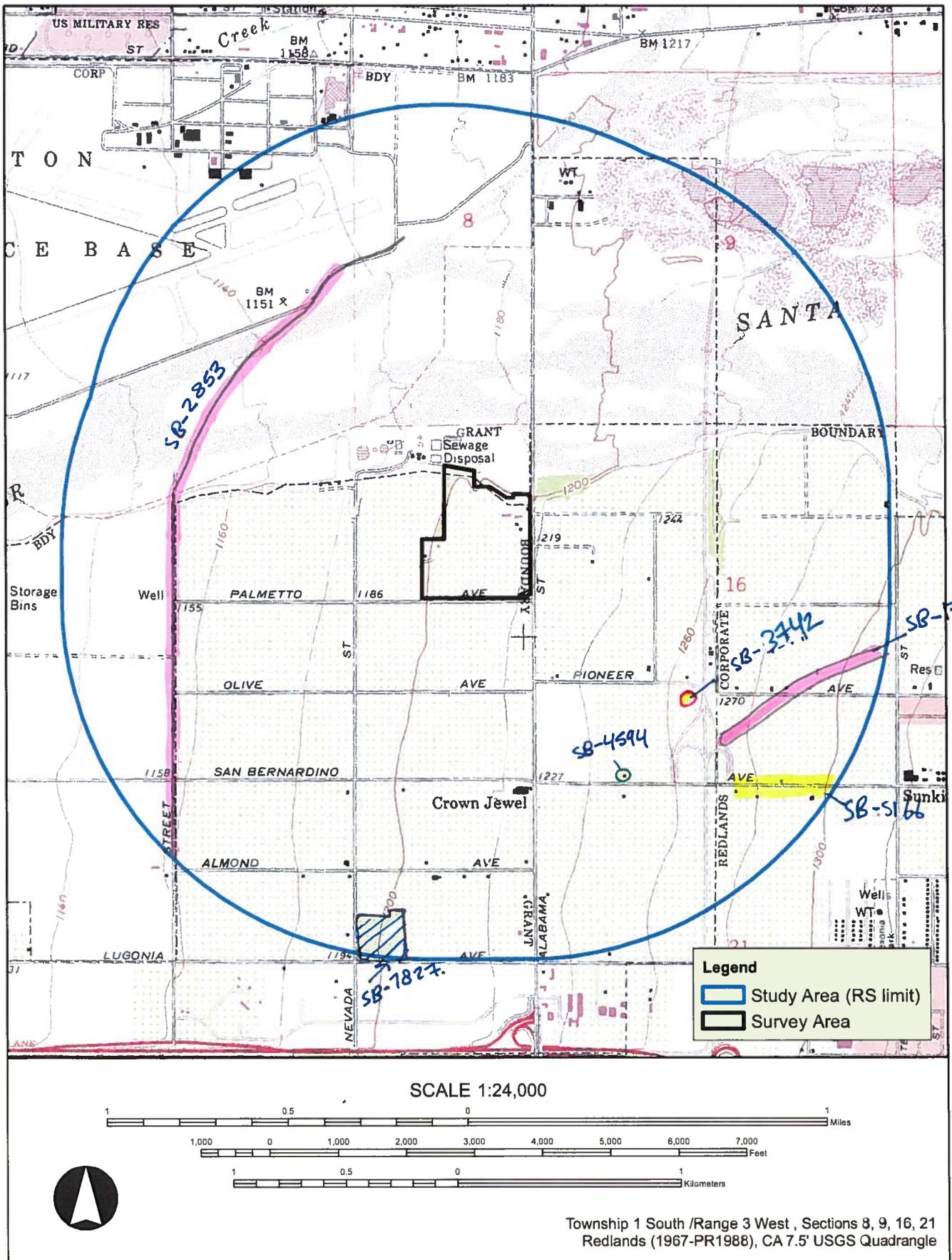
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Township 1 South /Range 3 West , Sections 8, 9, 16, 21  
Redlands (1967-PR1988), CA 7.5' USGS Quadrangle

Records Search location map for the *Webb-Duke-Alabama Street and Palmetto Avenue Project-AE 3895.*

14 Reports within project area: SB-02062, SB-05165 SB-03750



Records Search location map for the *Webb-Duke-Alabama Street and Palmetto Avenue Project-AE 3895*.

6 Reports within a 1-mile radius

SB-2853, SB-4594, SB-5166  
SB-7827, SB-3742, SB-1783