ARCHAEOLOGICAL STUDY FOR THE YOLO COUNTY AIRPORT TREE REMOVAL PROJECT

DAVIS, YOLO COUNTY, CALIFORNIA

LSA

March 2010

Cover Photograph

APN #04019045, view looking east down driveway

ARCHAEOLOGICAL STUDY FOR THE YOLO COUNTY AIRPORT TREE REMOVAL PROJECT

DAVIS, YOLO COUNTY, CALIFORNIA

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LSA

March 31, 2010

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INTRODUCTION

LSA Associates, Inc. (LSA) conducted this archaeological study at the request of Mead & Hunt as part of environmental review of the Yolo County Airport Tree Removal Project (project) in Davis, Yolo County, California (Figure 1). Yolo County (County) is proposing to remove selected groups of trees from non-contiguous areas around the airport because they extend into protected airspace. The project area is nearly equidistant from Davis, Winters, and Woodland, yet it is considered a portion of rural Davis.

The project Area of Potential Effects (APE) comprises those areas that will undergo tree removal, and is coterminous with the APE for direct effects to archaeological deposits. Ground-disturbing project activities would be limited to within the direct APE.

The purpose of this archaeological study is to (1) identify prehistoric or historical archaeological deposits that meet the definition of a historical or archaeological resource under the California Environmental Quality Act (CEQA), or a historic property under Section 106 of the National Historic Preservation Act (Section 106); and (2) characterize the general archaeological and geo-archaeological sensitivity of the subsurface environment in the project's APE. To prepare the study, LSA conducted background research and a pedestrian field survey focused only on archaeological deposits; built environment resources were not addressed. All consultation pursuant to the requirements of Section 106 was conducted by Mead & Hunt and is not documented in this report.

This cultural resources study was carried out by LSA archaeologist Leslie Smirnoff, who meets the *Secretary of the Interior's Professional Qualifications Standards* for archaeology (48 CFR 44716). Ms. Smirnoff has an M.A. in Cultural Resources Management from Sonoma State University and two and a half years of professional experience practicing archaeology in California for private firms and state agencies. Ms. Smirnoff is Registered Professional Archaeologist #56480.

No archaeological deposits were identified in or adjacent to the APE by this study. Further study or investigation for the presence of archaeological deposits is not recommended. Please see the Study Results and Recommendations sections for additional information.

PROJECT DESCRIPTION

The County is proposing to remove selected groups of trees from non-contiguous areas that surround the airport. These groups of trees extend into and obstruct portions of surrounding airspace. The majority of the trees to be removed are located along County Road 95 adjacent to the airport, while other groups are along Aviation Avenue and south of County Road 29. Additionally, some groups are located north of County Road 31. All but a few of the trees are eucalyptus. The proposed plan involves removing trees and the accompanying stumps, which may be pulled or ground out. Shorter tree species will be replanted in most locations.

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FIGURE 1

Archaeological Study

Yolo County Airport Tree Removal Project
Davis, Yolo County, California

Project Location

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AREA OF POTENTIAL EFFECTS

The APE consists of discontiguous polygons adjacent to and within the Yolo County Airport, near the City of Davis in Sections 3, 4, 33 and 34 of Townships 8 and 9 North/Range 1 East, Mount Diablo Base Line and Meridian (Figures 2 and 3). The APE is bounded by County Route 29 on the north and County Route 31 on the south, with County Route 95 extending north-south along the western edge. Currently, the APE consists of private residences, landscaping, and agricultural land.

The majority of the APE is located on an outcrop of the Pliocene (5.3 to 2.6 Ma[1]) Tehama Formation of the Vacaville Assemblage (Graymer et al. 2002:11; Wagner et al. 1991). This outcrop of Tehama Formation is bordered on the north, northwest, and southeast by Holocene (present to 10,000 years B.P.[2]) basin deposits. Basin deposits are fine-grained sediment deposits on valley floors that accumulate due to flooding. These Holocene deposits likely cover the Tehama Formation at an unknown depth (Graymer et al. 2002).

The soils in the APE are of several different, well-developed series: Hillgate, Myers, Brentwood, Corning, and Sehorn (Beaudette and O'Geen 2010).

There are several water sources that are near the APE: Dry Slough and Chickahominy Slough are approximately ¼ mile to the south and Union School Slough is approximately 1/4 mile north of the APE. Putah Creek is approximately 1½ miles to the south. Additionally, two channelized water sources are located in the northern portion of the APE.

The native vegetation of the APE originally consisted of riparian forest. Riparian forest is characterized by the presence of cottonwood (*Populus fremontii*) and woody vines interspersed with islands of tule (Küchler 1977:20). Modern agriculture and residential development has cleared much of the original forest and replaced it with agricultural uses.

LEGISLATIVE AND REGULATORY CONTEXTS

Both federal- and state-level regulations require that agencies identify important or significant cultural resources and take into account a proposed project's impacts or effects onto those resources. Both of these frameworks provide criteria for evaluating such resources in order to determine if an adverse impact or effect will occur.

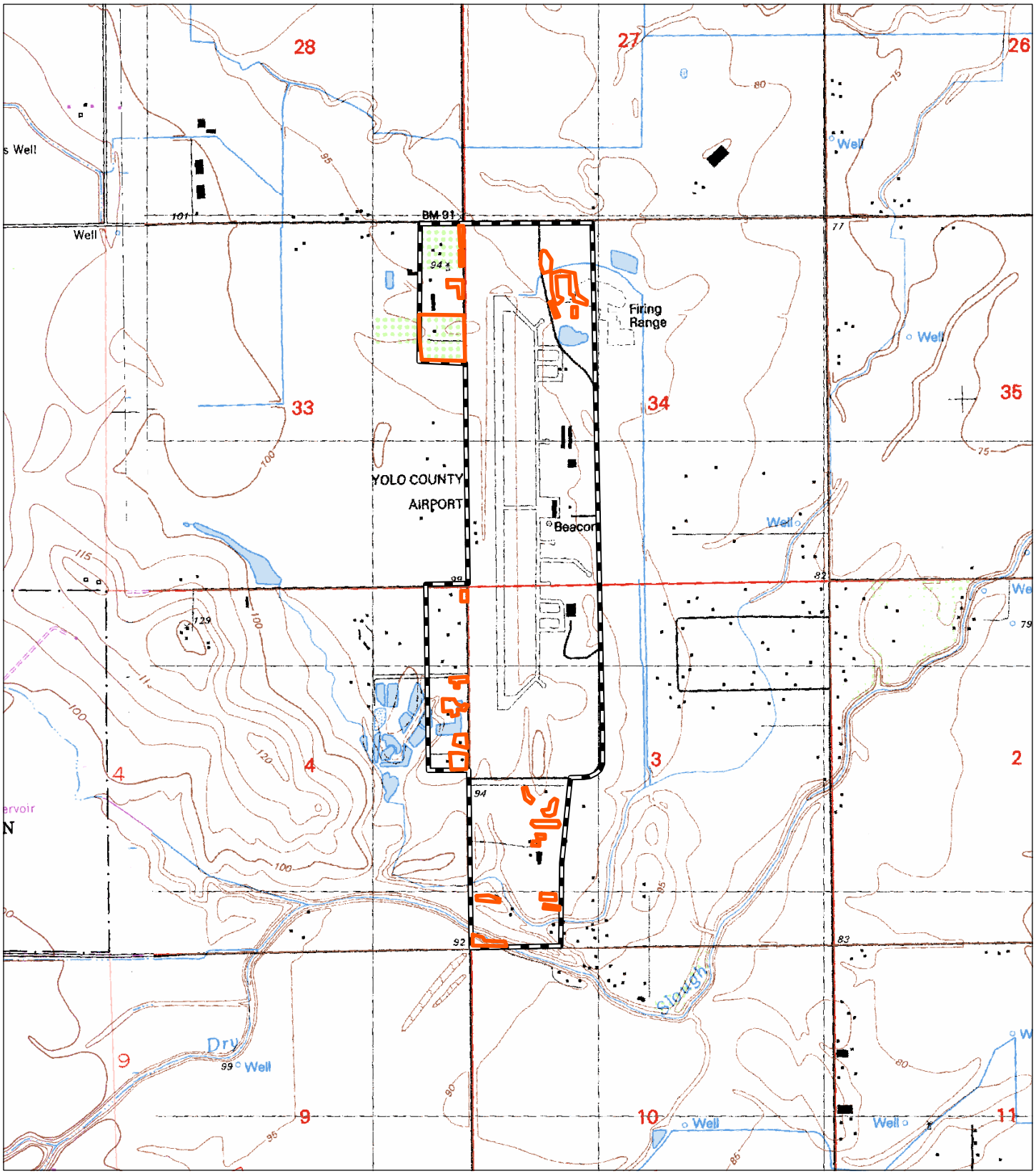
National Historic Preservation Act

National Register Bulletin *How to Apply the National Register Criteria for Evaluation* states:

> Preserving historic properties as important reflections of our American heritage became a national policy through passage of the Antiquities Act of 1906, the Historic Sites Act of 1935, and the National Historic Preservation Act of 1966, as amended….The National Historic Preservation

1 Million years ago.

2 Before present.



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N

0 1,000 2,000
Feet

Project Area

Project Area of Potential Effects

FIGURE 2

Archaeological Study

Yolo County Airport Tree Removal Project
Davis, Yolo County, California

Project Area of Potential Effects

Source: USGS 7.5' *Merritt Calif.*, 1981 and *Winters Calif.*, 1968 Quad Maps
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LSA

Project Area

Project Area of Potential Effects

0 400 800

Feet

FIGURE 3

Archaeological Study

Yolo County Airport Tree Removal Project
Davis, Yolo County, California

Project Area of Potential Effects

SOURCE: Aerial Imagery from the U.S. Department of Agriculture, NAIP (2005)

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> Act of 1966 authorized the Secretary to expand this recognition to properties of local and State significance in American history, architecture, archaeology, engineering, and culture, and are worthy of preservation. The National Register of Historic Places is the official list of the recognized properties, and is maintained and expanded by the National Park Service on behalf of the Secretary of the Interior [National Park Service 1997a:i].

Section 106. If a project is subject to federal jurisdiction and the project is an undertaking as defined by 36 CFR §800.16(y) with the potential to cause effects on historic properties (36 CFR §800.3(a)), Section 106 of the National Historic Preservation Act of 1966, as amended, must be addressed to take into account the effect of the undertaking on any district, site, building, structure, or object included in or eligible for inclusion in the National Register of Historic Places.

National Register of Historic Places[3]

Historic Property. A historic property is any district, site, building, structure, or object listed in or eligible for listing in the National Register at the local, state, or national level (36 CFR §800.16(l)(1); National Park Service 1997b:Appendix VII:3). The criteria for determining a resource's eligibility for National Register listing are defined at 36 CFR §60.4. The evaluation of a resource's eligibility for listing in the National Register takes into account the property's age, period of significance, historic context, significance, and integrity.

Age. Generally, cultural properties must be 50 years of age or more to be eligible for listing in the National Register. National Register Bulletin *How to Apply the National Register Criteria for Evaluation*, states that "properties that have achieved significance within the past 50 years shall not be considered eligible" unless such properties are "of exceptional importance" (National Park Service 1997a:2).

Period of Significance. The period of significance for a property is "the span of time when a property was associated with important events, activities, persons, cultural groups, and land uses or attained important physical qualities or characteristics" (National Park Service 1999:21). The period of significance begins with the earliest important land use or activity that is reflected by historic characteristics tangible today. The period closes with the date when events having historical importance ended (National Park Service 1999:21).

Significance Criteria. Four evaluation criteria are applied to the property in which the property's significance for its association with important events or persons, importance in design or construction, or information potential is assessed (National Park Service 1997a:11). The criteria for determining a resource's significance for National Register listing are defined at 36 CFR §60.4 and are as follows:

> …the quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and

[3] The eligibility requirements of the California Register of Historical Resources and the National Register of Historic Places are nearly identical. A property that is eligible for the National Register is considered eligible for the California Register and, in general, properties that are considered eligible for the California Register will also be eligible for the National Register.

a) That are associated with events that have made a significant contribution to the broad patterns of our history; or

b) That are associated with the lives of persons significant in our past; or

c) That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

d) That have yielded, or may be likely to yield, information important in prehistory or history.

Integrity. In order to be eligible for the National Register, a cultural resource must retain historical integrity, which is the ability of a resource to convey its significance. The evaluation of integrity must be grounded in an understanding of a resource's physical features and its environment, and how these relate to its significance. "The retention of specific aspects of integrity is paramount for a property to convey its significance"(National Park Service 1997a:44). Under Criteria A, B, and C, the National Register places an emphasis on a resource appearing like it did during its period of significance to convey historical significance; under Criterion D, properties convey significance through the information they contain (National Park Service 2000:38).

National Register Bulletin *How to Apply the National Register Criteria for Evaluation* (National Park Service 1997a:2) states that the quality of significance is present in districts, sites, buildings, structures, and objects that possess integrity. There are seven aspects of integrity to consider when evaluating a cultural resource: location, design, setting, materials, workmanship, feeling, and association:

- Location is the place where the historic property was constructed or the place where the historic event occurred. The actual location of a historic property, complemented by its setting, is particularly important in recapturing the sense of historic events and persons.
- Design is the combination of elements that create the form, plan, space, structure, and style of a property. Design includes such elements as organization of space, proportion, scale, technology, ornamentation, and materials.
- Setting is the physical environment of a historic property. Setting refers to the character of the place in which the property played its historical role. Physical features that constitute the setting of a historic property can be either natural or manmade, including topographic features, vegetation, paths or fences, or relationships between buildings and other features or open space.
- Materials are the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property.
- Workmanship is the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory. It is the evidence of the artisan's labor and skill in constructing or altering a building, structure, object, or site.
- Feeling is a property's expression of the aesthetic or historic sense of a particular period of time. It results from the presence of physical features that, taken together, convey the property's historic character.
- Association is the direct link between an important historic event or person and a historic property.

"To retain historic integrity a property will always possess several, and usually most, of the aspects" (National Park Service 1997a:44).

Eligibility. National Register Bulletin *How to Apply the National Register Criteria for Evaluation* (National Park Service 1997a:3) states that in order for a property to qualify for listing in the National Register, it must meet at least one of the National Register criteria for evaluation by:

- being associated with an important historic context *and*
- retaining historic integrity of those features necessary to convey its significance.

Resources that meet the age guidelines, are significant, and possess integrity will generally be considered eligible for listing in the National Register.

California Environmental Quality Act (CEQA)

CEQA applies to all discretionary projects undertaken or subject to approval by the state's public agencies (California Code of Regulations [CCR] Title 14(3) §15002(i)). CEQA states that it is the policy of the State of California to

> "…take all action necessary to provide the people of this state with… historic environmental qualities…and preserve for future generations examples of the major periods of California history" (Public Resources Code [PRC] §21001(b), (c)). Under the provisions of CEQA, "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" (CCR Title 14(3) §15064.5(b)).

CEQA §15064.5(a) defines a 'historical resource' as a resource which meets one or more of the following criteria:

- Listed in, or eligible for listing in, the California Register of Historical Resources;
- Listed in a local register of historical resources (as defined at PRC §5020.1(k));
- Identified as significant in a historical resource survey meeting the requirements of §5024.1(g) of the Public Resources Code; or
- Determined to be a historical resource by a project's lead agency (CCR Title 14(3) §15064.5(a)).

A historical resource consists of

> Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California…Generally, a resource shall be considered by the lead agency to be 'historically significant' if the resource meets the criteria for listing in the California Register of Historical Resources (CCR Title 14(3) §15064.5(a)(3)).

CEQA requires that historical resources and unique archaeological resources be taken into consideration during the CEQA planning process (CCR Title 14(3) §15064.5; PRC §21083.2). If feasible, adverse effects to the significance of historical resources must be avoided, or the effects mitigated (CCR Title 14(3) §15064.5(b)(4)). The significance of a historical resource is impaired when a project demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for the California Register of Historical Resources. If there is a substantial adverse change in the significance of a historical resource, the preparation of an environmental impact report may be required (CCR Title 14(3) §15065(a)).

If the cultural resource in question is an archaeological site, CEQA (CCR Title 14(3) §15064.5(c)(1)) requires that the lead agency first determine if the site is a historical resource as defined in CCR Title 14(3) §15064.5(a). If the site qualifies as a historical resource, potential adverse impacts must be considered in the same manner as a historical resource (California Office of Historic Preservation 2001a:8). If the archaeological site does not qualify as a historical resource but does qualify as a unique archaeological site, then the archaeological site is treated in accordance with PRC §21083.2 (CCR Title 14(3) §15069.5(c)(3)). In practice, most archaeological sites that meet the definition of a unique archaeological resource will also meet the definition of a historical resource (Bass, Herson, and Bogdan 1999:105). CEQA defines a "unique archaeological resource" as an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets one or more of the following criteria:

- Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information; or
- Has a special and particular quality such as being the oldest of its type or the best available example of its type; or
- Is directly associated with a scientifically recognized important prehistoric or historic event or person (PRC §21083.2(g)).

If an impact to a historical or archaeological resource is significant, CEQA requires feasible measures to minimize the impact (CCR Title 14(3) §15126.4 (a)(1)). Mitigation of significant impacts must lessen or eliminate the physical impact that the project will have on the resource. Generally, the use of drawings, photographs, and/or displays does not mitigate the physical impact on the environment caused by demolition or destruction of a historical resource. However, CEQA requires that all feasible mitigation be undertaken even if it does not mitigate impacts to a less than significant level (California Office of Historic Preservation 2001a:9; see also CCR Title 14(3) §15126.4(a)(1)).

California Register of Historical Resources

The California Register of Historical Resources (California Register) is a guide to cultural resources that must be considered when a government agency undertakes a discretionary action subject to CEQA. The California Register helps government agencies identify and evaluate California's historical resources (California Office of Historic Preservation 2001b:1), and indicates which properties are to be protected, to the extent prudent and feasible, from substantial adverse change (PRC §5024.1(a)). Any resource listed in, or eligible for listing in, the California Register is to be considered during the CEQA process (California Office of Historic Preservation 2001a:7).

A cultural resource is evaluated under four California Register criteria to determine its historical significance. A resource must be significant at the local, state, or national level in accordance with one or more of the following criteria:

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

Age. In addition to meeting one or more of the above criteria, the California Register requires that sufficient time must have passed to allow a "scholarly perspective on the events or individuals associated with the resource." Fifty years is used as a general estimate of the time needed to understand the historical importance of a resource (California Office of Historic Preservation 2006:3; CCR Title 14(11.5) §4852 (d)(2)). The State of California Office of Historic Preservation recommends documenting, and taking into consideration in the planning process, any cultural resource that is 45 years or older (California Office of Historic Preservation 1995:2).

Period of Significance. The period of significance for a property is "the span of time when a property was associated with important events, activities, persons, cultural groups, and land uses or attained important physical qualities or characteristics" (National Park Service 1999:21). The period of significance begins with the date of the earliest important land use or activity that is reflected by historic characteristics tangible today. The period closes with the date when events having historical importance ended (National Park Service 1999:21). The period of significance for an archeological property is "the time range (which is usually estimated) during which the property was occupied or used and for which the property is likely to yield important information" (National Park Service 2000:34). Archaeological properties may have more than one period of significance.

Integrity. The California Register also requires a resource to possess integrity, which is defined as "the authenticity of a historical resource's physical identity evidenced by the survival of characteristics that existed during the resource's period of significance. Integrity is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association" (California Office of Historic Preservation 2006:2).

Eligibility. Resources that are significant, meet the age guidelines, and possess integrity will generally be considered eligible for listing in the California Register.

California Public Resources Code §5097.5

California Public Resources Code §5097.5 prohibits excavation or removal of any "…archaeological, paleontological or historical feature, situated on public lands, except with express permission of the public agency having jurisdiction over such lands." Public lands are defined to include lands owned by or under the jurisdiction of the state or any city, county, district, authority or public corporation, or any agency thereof. Section 5097.5 states that any unauthorized disturbance or removal of

archaeological, historical, or paleontological materials or sites located on public lands is a misdemeanor.

California Health and Safety Code §7050.5

Section 7050.5 of the California Health and Safety Code states that in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the remains are discovered has determined whether or not the remains are subject to the coroner's authority. If the human remains are of Native American origin, the coroner must notify the Native American Heritage Commission within 24 hours of this identification. The Native American Heritage Commission will identify a Native American Most Likely Descendant (MLD) to inspect the site and provide recommendations for the proper treatment of the remains and associated grave goods.

METHODS

Background research was completed to identify cultural resources within and cultural resources studies of the APE. The background research consisted of a records search, a literature/map review, and a geo-archaeological sensitivity assessment of the project site.

Background Research

A records search (File #09-0936) of the project area and a ¼-mile radius was completed at the Northwest Information Center (NWIC) of the California Historical Resources Information System, Sonoma State University, Rohnert Park, on January 29, 2010. The NWIC, an affiliate of the California Office of Historic Preservation, is an official state repository of cultural resources records and reports for Yolo County.

As part of the records search LSA also reviewed the following State of California and City inventories for cultural resources in and adjacent to the project area:

- *California Inventory of Historic Resources* (California Department of Parks and Recreation 1976);
- Five Views: An Ethnic Historic Site Survey for California (California Office of Historic Preservation 1988);
- *California Historical Landmarks* (California Office of Historic Preservation 1996);
- *California Points of Historical Interest* (California Office of Historic Preservation 1992);
- *Directory of Properties in the Historic Property Data File* (California Office of Historic Preservation October 23, 2009). The directory includes the listings of the National Register of Historic Places, National Historic Landmarks, the California Register of Historical Resources, California Historical Landmarks, and California Points of Historical Interest; and
- *Yolo County Historic Resource Survey: Area 6, Rural Davis* (Les 1986).

Results. No recorded cultural resources were identified by the record search or literature review in or adjacent to the APE, and no previous studies of the project area have been done. However, within the ¼-mile radius surrounding the APE, both a survey has been conducted and a resource is indicated on NWIC maps. In an approximately 90 meter x 90 meter area adjacent to the southern portion of the APE, a segment of a larger archaeological survey was executed with negative results (True 1980). Additionally, the maps at the NWIC depict recorded resource, the Victorian-era Gotfried Schmeiser house built by a prominent Davis family, in the southern portion of the ¼-mile radius. This resource is a historic property located on County Road 31 east of County Road 95 and on the south side of the road. It is listed in both the Yolo County Historic Resources Survey (Les 1986) and in the Office of Historic Preservation's Historic Properties Directory (2009). The Office of Historic Preservation's Historic Properties Directory lists the property under the status code of 3S, which means that it appears eligible for the National Register of Historic Places as an individual property through survey evaluation.

LSA's review of historic-era maps identified a building/structure directly adjacent to the southern-most portion of the APE, as shown on the *Woodland, California* 15-minute quadrangle (U.S. Geological Survey 1907). Additionally, a building/structure adjacent to the northern-most portion of the APE is shown on the same *Woodland, California* quadrangle as well as another *Woodland, California* 15-minute quadrangle (U.S. Army Corps of Engineers 1940).

Field Survey

On February 25, 2010, LSA archaeologists Leslie Smirnoff and Thea Fuerstenberg, B.A., conducted a pedestrian survey of the APE to identify archaeological deposits. All but one of the discontiguous polygons that comprise the APE were surveyed. The one excluded area, APN #03812009, was inaccessible due to objections from the property owner. No other issues prevented access to the APE.

The pedestrian survey consisted of LSA staff surveying the APE with transects that ranged in spacing between three and five meters apart. Ground surface visibility ranged from good to poor: approximately 40% of areas were sparsely vegetated, 30% was moderately vegetated or covered with visual obstructions such as tall grasses, and the remaining 30% was covered with a thick layer of duff, tree limbs, fallen bark or pavement. In areas where groundcover would permit (e.g., areas not landscaped or paved), the ground surface was scraped every five-to-ten meters to expose potential archaeological materials. Additionally, rodent-burrows and backdirt piles were examined for midden soils, artifacts and other indicators of archaeological deposits.

CULTURAL SETTING

Prehistoric Context

The Paleoindian/Archaic/Emergent cultural sequence developed by Fredrickson (1974) is commonly used to interpret the prehistoric occupation of Central California. Fredrickson has divided time and cultural characteristics ranging from approximately 10,000 B.C.–A.D. 1800 into three major periods: the Paleoindian Period (10,000–6000 B.C.); the three-staged Archaic Period, consisting of the Lower Archaic (6000–3000 B.C.), Middle Archaic (3000–1000 B.C.), and Upper Archaic (1000 B.C.–A.D. 500); and the Emergent Period (A.D. 500–1800).

This Paleoindian period corresponds to the end of the Ice Age, and there is little concrete information about the environment or culture available for these dates. Due to a lack of millingstone implements that have been located from this period, milling is not believed to have occurred or to have been in an incipient phase. It is hypothesized that hunting and gathering were the means of subsistence in this period (Fredrickson 1984:497). Following the Paleoindian period is the Archaic period. The Lower Archaic period is linked to climate change associated with an antithermal, a period of high temperatures and minimal precipitation. During this period, there was an emphasis on seed collecting and processing. The Middle Archaic period is marked by the presence of acorn processing artifacts: the mortar and the pestle. It is believed that this period saw the end of the antithermal and the beginning of the medithermal, or slight cooling of climate conditions, which is the climate that is experienced today. In this period, hunting increased in importance and the prevalence of marine and littoral faunal remains becomes apparent. Fredrickson postulated that this period and the new technologies evident within it (e.g., the concave base projectile point and the mortar and pestle) are the product of population shifts. Following the Middle Archaic period is the Upper Archaic period, which is marked by a climate that turned colder and wetter yet more stable (Rosenthal et al. 2007:155). This period shows an increase in social complexity, which is demonstrated by way of status distinctions that are evident in burials and seemingly more complex networks of trade (Fredrickson 1974:46–48). The stable climate evident in the Upper Archaic continued into the Emergent period (Rosenthal et al. 2007:157). This period is marked by a spike in population and a growing body of evidence of inter-group exchange, which indicates social, religious and organization patterns were becoming more complex (Moratto 1984:211).

Ethnographic Context

The outskirts of Davis and the surrounding area are characterized in ethnographic literature as the seasonal territory inhabited by the Southern Patwin, specifically the Hill Patwin, during the contact period. The territorial boundaries of the Patwin are described as extending along the Sacramento Valley from the town of Princeton to the San Pablo and Suisun bays. Patwin is not so much the name of a tribe but a name used to refer to themselves meaning “people.” The Patwin share common linguistic ties with their northern neighbors, the Wintuan. Often the Patwin are referred to as Southern Wintuan. The Wintuan language is classified under the umbrella of the Penutian stock, which is associated with other Native American groups as well (Johnson 1978:350).

Patwin territories were comprised of one or more land holding groups that anthropologists refer to as “tribelets.” The tribelet, a nearly universal characteristic throughout native California, consists of a principle village occupied year round, and a series of smaller hamlets and resource gathering and processing locations occupied intermittently or seasonally. Populations of tribelets ranged between 50 and 500 persons and were largely determined by the carrying capacity of a tribelet’s territory (Kroeber 1932:258). A chief governed each village, functioning as a manager of economic and ceremonial activities. Additionally, shaman possessed power through curative and spiritual abilities. Subsistence consisted of hunting, fishing and gathering seeds, acorns and bulbs depending on the season. Mussels were collected along riverbeds as well. Each village had its own specific hunting, fishing and gathering areas with the village chief assigning families to collect in specific locations. In addition to sustenance provided by floral and faunal resources, many had utilitarian function as well. Coiled or twined baskets, often decorated with feathers or shells, and rope were woven from vegetative matter. Cured animal hides served as bedding, robes, skirts, mats and sacks. Tools were often made of bone, wood and stone. The Patwin utilized tule balsa boats propelled by pole to traverse waters. Four types of permanent buildings existed in the village: the dwelling meant for

habitation, the ceremonial dance house, the sweat hut and the menstrual hut. All were elliptical, earth-covered, and semi-subterranean buildings (Johnson 1978:350–360).

By the late eighteenth century, Spanish exploration of the Sacramento Valley and settlement of the Bay Area transformed Patwin culture. Spanish settlers moved into northern California and established the mission system that exposed the Patwin to diseases to which they had no immunity. Mission records indicate that many Patwin entered missions San Francisco and San Jose. Additionally, with the onslaught of settlers in the area during the Mexican and American eras the remaining Patwin were forced from their lands and assimilated into American culture either working as laborers on ranches or being forced onto reservations (Johnson 1978:351).

Historical Context

Spanish Period. There is little record of Yolo County and even less regarding the vicinity of Davis from the Spanish period. The first documented explorers were led by Spanish explorer Gabriel Moraga in 1808 (Les 1986:22). These pioneers and trailblazers were followed by Franciscan missionaries aiming to convert the Patwin and their Native American neighbors into Catholics and loyal subjects of Spain as well as landowners looking for laborers (Kroeber 1925:357).

Mexican period. During the Mexican period, Jedediah Smith is recorded as venturing into the area to survey the region's fur potential (Johnson 1978:351 from Larkey 1969). Many of the visitors to this vicinity were hunters and trappers exploiting the rich resources along Cache Creek during this era (Gregory 1913:6). Yet, productive hunting was not the only benefit of the area that attracted sojourners and settlers. The reoccurring flooding which led to rich soils was recognized as a boon for agricultural activities (Les 1986:41). Located approximately one mile to the south of the APE, the first land grant in Yolo County, Ranch Rio de los Putos, was acquired in 1842 by William Wolfskill. A portion of this land grant was occupied by Wolfskill's brother John and was utilized for agriculture (Hoover et al. 1990:533). Some assert that Wolfskill became "the father of the horticulture industry in northern California" (Hoover et al. 1990:533). Present-day Davis is located in what was the Rancho Laguna de Santos Calle, an unconfirmed Mexican land grant (Les 1986:41).

American Period. In the 1850s, Joseph B. Chiles acquired 4200 acres of the Rancho Laguna de Santos Calle, and eventually divided it between his sons in law, Gabriel Brown and Jerome C. Davis. By 1864, the Davis ranch covered 13,000 acres, producing wheat, peaches and grapes in addition to raising stock. The ranch house was leased in 1867 to William Dresbach who turned it into a hotel. Settlement began to spring up around the hotel and Dresbach named the town Davisville (Hoover et al. 1990:537). In the early 1860s, the California Pacific railroad established a line that ran through Davisville. The railroad purchased some land from the Davis family, recorded a town plat and sold lots to prospective residents and businesspeople (Les 1986:24 and 41). By 1870, rural Davisville had 1000 residents while the town had 400 citizens (Les 1986:41). Additionally, the 1879 Official Map of Yolo County illustrates the APE and the vicinity as situated on a variety or parcels that were all claimed land (De Pue 1879:2). The 1870 U.S. Census of rural Davisville illustrates that the majority of the individuals living in rural Davis were farmers. Out of 10 heads of household on one page of the census, nine individuals list their occupation as farmer. In 1905 the University Farm, from which sprang what is known today as UC Davis, was established and the town of Davisville dropped the ending of its name, becoming Davis, as it is referred to today.

The airport was constructed in 1942 by the U.S. military on land that was acquired through take permit. The existing landing strip was at one time connected via access road to a troop housing area as well as a bomb storage facility (California Military Museum n.d.). After World War II, the airport was ceded to Yolo County (Sacramento Area Council of Governments 1999:4). The rural character that was established in the historic-era continues in and around rural Davis, as much of the property surrounding the airport is zoned agricultural with limits placed on single-family development (Sacramento Area Council of Governments 1999:7).

GEOARCHAEOLOGICAL SENSITIVITY ASSESSMENT

The age of a particular landform can be used to determine the sensitivity for buried archaeological deposits. Certain landforms are too old (>15,000 years B.P.) or too young (<150 years B.P.) to contain buried prehistoric archaeological resources. The degree of surface soil development can be used to assess the relative age of a landform. Weakly-developed soils are generally younger and shallower, with few horizons; well-developed soils are generally older, having taken longer to develop and are deeper with more horizons. Well-developed surface soils are associated with older landforms that may have been at or near the surface and will generally have a lower sensitivity for buried archaeological resources. Conversely, weakly-developed surface soils are associated with younger landforms formed in the recent geologic past and generally have a high sensitivity for buried archaeological resources (Rosenthal and Meyer 2004:49).

Geology

Geologically, the APE is situated in the Sacramento Valley, which is a large, northwest-southeast trending asymmetrical structural trough filled with a thick sequence of marine and nonmarine sediments (Hackel 1966:217). The Sacramento Valley is bounded by the Coast Range to the west, the Cascade Range to the north, the Sierra Nevada to the east, and the Sacramento-San Joaquin Delta to the south.

The majority of the APE is located on located on an outcrop of the Pliocene (5.3 to 2.6 Ma) Tehama Formation of the Vacaville Assemblage (Graymer et al. 2002:11; Wagner et al. 1991). The Tehama Formation is a poorly consolidated, non-marine, white quartz arenite tuffaceous sandstone, siltstone, and pebble to cobble conglomerate (Graymer et al. 2002:11). It contains beds of white ash tuff and pink tuff breccia of the Putah Tuff member (Graymer et al. 2002:11). The Tehama Formation is, in some places, overlain by the Pleistocene (2.6 Ma to 10,000 B.P.) Montezuma Formation. The Tertiary (65 to 2.6 Ma) sedimentary and volcanic deposits of the Vacaville Assemblage, including the Pliocene Tehama Formation, overlie the Mesozoic (251 to 65 Ma) sandstone, siltstone, and shale of Great Valley Sequence at an unknown depth (Graymer et al. 2002).

This outcrop of Tehama Formation is bordered on the north, northwest, and southeast by Holocene (present to 10,000 years B.P.) basin deposits. Basin deposits are fine-grained sediment deposits on valley floors from flooding. The area along Dry Slough, in the southern portion of the APE, is mapped as Holocene alluvium (Graymer et al. 2002). This alluvium can be sand, silt, or gravel and is undissected by later erosion (Graymer et al. 2002:4). These Holocene deposits likely cover the Tehama Formation at an unknown depth (Graymer et al. 2002).

Soils

The soils in the APE are of several different, well-developed series: Hillgate, Myers, Brentwood, Corning, and Sehorn (Beaudette and O'Geen 2010).

Hillgate Series. The majority of the APE (roughly corresponding with the area mapped as Tehama Formation) is mapped as Hillgate loam, moderately deep. Hillgate is also mapped in the extreme northwestern portion of the APE, near County Road 29. The Hillgate series typically consists of very deep, well- to moderately well-drained soils that formed in alluvium from mixed sources (Natural Resources Conservation Service [NRCS] 2010c). They are on nearly level to moderately sloping old terraces. They are well-developed with a typical depth of approximately 73 inches (NRCS 2010c).

Myers Series. Surrounding the Hillgate series is Myers clay. Myers is also mapped in the extreme southern portion of the APE, south of Dry Slough. The Myers series consists of very deep, well-drained soils found in basins (NRCS 2010d). Myers soils are on nearly level alluvial fans. They are well-developed with a typical depth of at least 71 inches (NRCS 2010d).

Brentwood Series. The area immediately adjacent to Dry Slough is mapped as Brentwood silty clay loam. The Brentwood series consists of deep, well- to moderately well-drained soils formed in valley fill from sedimentary rocks (NRCS 2010a). Brentwood soils are on nearly level to gently sloping fans. They are well-developed with a typical depth of approximately 60 inches (NRCS 2010a).

Corning Series. Two patches of Corning gravelly loam are mapped in the APE. One is in the southeastern portion of the APE, near County Road 31 and east of County Road 95. The other patch is in the southwestern portion of the APE, near County Road 31 and west of County Road 95. Gravel pits are also mapped near this southwestern patch. The Corning series consists of very deep, well- or moderately well-drained soils that formed in gravelly alluvium weathered from mixed rock sources (NRCS 2010b). Corning soils are on nearly level to gently rolling old high, old terrace remnants with mounded relief. They are well-developed with a typical depth of approximately 60 inches (NRCS 2010b).

Sehorn Series. Also mapped in the southwestern portion of the APE, near County Road 31 and west of County Road 95, is Sehorn clay, 2- to 15-percent slopes. The Sehorn series consists of moderately deep, well-drained soils found on foothills and formed in residuum weathered from calcareous sandstone and shale (NRCS 2010e). They are well-developed with a typical depth of approximately 32 inches (NRCS 2010e).

Summary

Based on background research, APE has a low-to-moderate sensitivity for buried archaeological deposits based on the soil types and landform age. The soils in the project are well developed and, in the central portion of the APE, are associated with Tertiary landforms that are too old to contain buried archaeological deposits. The soils associated with Holocene landforms on the perimeter of the APE are typically well developed, although buried archaeological resources could be found beneath these soils.

STUDY RESULTS

No archaeological deposits were identified as a result of this study. Background records search database indicated that no recorded cultural resources or previously conducted studies are in or adjacent to the APE. Much of the APE's ground surface was disturbed, with many locations on or adjacent to human-made berms or proximal to channelized water. Adding to this, much of the APE was and is utilized for agricultural purposes, and therefore has been repeatedly disturbed by seasonal plowing.

The pedestrian survey identified freshwater clam shells were identified at the northern boundary of APN #04019045 and along the northern boundary of the rifle range, northeast of the runway in APN #04019006. The clam shells were in berms along an unimproved dirt road paralleling the channelized water course running east to west and flanking the upper portion of the airport property. No other archaeological indicators were identified in association with the clam shells, and they are considered natural occurrences. Additionally, the southern-most portion of the APE (APN #03701021) contained several variously sized piles of modern lumber consisting of discarded fence posts and shipping palettes.

Because no archaeological deposits were identified in the APE, and based on background research into soil types and landform age, the APE has a low-to-moderate sensitivity for buried archaeological deposits. For these reasons, the project is not anticipated to result in either adverse effects to archaeological deposits that may qualify as historic properties under Section 106 or a significant impact to archaeological deposits that qualify as historical resources or archaeological resources under CEQA.

RECOMMENDATIONS

Although the results of this study were negative, there is always the potential to encounter intact subsurface prehistoric and historical archaeological deposits and human remains during project construction. The following procedures should be addressed in project contract documents.

Archaeological Deposits

Project construction contracts should include the following directive. The language should be included in the contract documents prior to permitting project actions that include ground-disturbing activities.

If deposits of prehistoric or historical archaeological materials are encountered during project activities, all work within 25 feet of the discovery should be redirected and a qualified archaeologist contacted to assess the situation, consult with agencies as appropriate, and make recommendations for the treatment of the discovery. Project personnel should not collect or move any archaeological materials. Archaeological materials can include flaked-stone tools (e.g., projectile points, knives, and choppers) or obsidian, chert, basalt, or quartzite tool-making debris; bone tools; culturally darkened soil (i.e., midden soil often containing heat-affected rock, ash and charcoal, shellfish remains, bones and other cultural materials); and stone-milling equipment (e.g., mortars, pestles and handstones). Prehistoric archaeological sites often contain human remains. Historical materials can include wood, stone, concrete, or adobe footings, walls, and other structural remains; debris-filled wells or privies; and deposits of wood, glass, ceramics, metal, and other refuse. Project personnel should not

collect or move any archaeological materials or human remains and associated materials. Fill soils used for construction purposes should not contain archaeological materials.

It is recommended that adverse effects to accidentally discovered archaeological deposits be avoided by project activities. If such deposits cannot be avoided, they should be evaluated for their National Register of Historic Places and/or California Register of Historical Resources eligibility. If a deposit is not eligible (i.e., if it is not a historic property under Section 106 or a historical resource under CEQA), a determination should be made as to whether it qualifies as a "unique archaeological resource" under CEQA. If the deposit is neither an historical nor unique archaeological resource, avoidance is not necessary. If the deposit is eligible for listing in the National Register of Historic Places and/or the California Register of Historical Resources, or is a unique archaeological resource, it will need to be avoided by adverse effects or such effects must be mitigated. Adverse effects will be mitigated through the implementation of a treatment plan developed in consultation with the County. Mitigation may consist of, but is not necessarily limited to, systematic recovery and analysis of archaeological deposits; recording the resource; preparation of a report of findings; and accessioning recovered archaeological materials at an appropriate curation facility.

Human Remains

Although the proposed project is not anticipated to disturb burials, there is always the possibility that human remains will be encountered. Project construction contracts should include the following directive. The language should be included in the contract documents prior to permitting project actions that include ground-disturbing activities.

If human remains are encountered during project activities, work within 25 feet of the discovery shall be redirected and the County Coroner notified immediately. At the same time, an archaeologist shall be contacted to assess the situation and consult with agencies as appropriate. Project personnel shall not collect or move any human remains and associated materials. If the human remains are of Native American origin, the Coroner must notify the Native American Heritage Commission within 24 hours of this identification. The Native American Heritage Commission will identify a Most Likely Descendant to inspect the site and provide recommendations for the proper treatment of the remains and associated grave goods.

Upon completion of the assessment, the archaeologist should prepare a report documenting the methods and results, and provide recommendations for the treatment of the human remains and any associated cultural materials, as appropriate and in coordination with the recommendations of the Most Likely Descendant.

REFERENCES CONSULTED

Beaudette, D.E., and A.T. O'Geen
2010 *California Soil Resource Lab, Online Soil Survey*. University of California, Davis. Accessed at <http://casoilresource.lawr.ucdavis.edu/drupal/node/27> on February 5, 2010.

California Code of Regulations
Guidelines for the Implementation of CEQA. 14 CCR Section 15064.5.

California Department of Parks and Recreation
1976 *California Inventory of Historic Resources*. California Department of Parks and Recreation, Sacramento.

California Office of Historic Preservation
1988 *Five Views: An Ethnic Site Survey for California.* California Department of Parks and Recreation, Sacramento.

1992 *Points of Historical Interest.* California Department of Parks and Recreation, Sacramento.

1995 *Instructions for Recording Historical Resources.* Office of Historic Preservation, Sacramento.

1996 *California Historical Landmarks*. California Department of Parks and Recreation, Sacramento.

2001a *California Environmental Quality Act (CEQA) & Historical Resources*. Technical Assistance Series No. 1. California Department of Parks and Recreation, Sacramento.

2001b *California Register of Historical Resources: Q & A for Local Governments*. Technical Assistance Series No. 4. California Department of Parks and Recreation, Sacramento.

2006 *California Register and National Register: A Comparison (for purposes of determining eligibility for the California Register).* Technical Assistance Series No. 6. California Department of Parks and Recreation, Sacramento.

2009 *Directory of Properties in the Historic Property Data File*, October 23, 2009. California Department of Parks and Recreation, Sacramento.

California Public Resources Code
Native American Historic Resource Protection Act. PRC Section 5097.5

California State Military Department
n.d. Winters-Davis Flight Stop. Electronic document, www.militarymuseum.org/Davis WintersFS.html, accessed February 26, 2010.

Code of Federal Regulations
Criteria for the Evaluation of Properties to the National Register. 36 CFR 60.4.

De Pue and Company
1879 Official Map of Yolo County. De Pue and Company, San Francisco.

Fredrickson, David A.
1973 *Early Cultures of the North Coast Ranges, California*. Unpublished Ph.D. dissertation, Department of Anthropology, University of California, Davis, California.

1974 Cultural Diversity in Early Central California: A View from the North Coast Ranges. *Journal of California Anthropology* 1(1):41-53.

Graymer, R.W., D.L. Jones, and E.E. Brabb
2002 Geologic Map and Map Database of Northeastern San Francisco Bay Region, California. Most of Solano County and Parts of Napa, Marin, Contra Costa, San Joaquin, Sacramento, Yolo, and Sonoma Counties. U.S. Geological Survey Miscellaneous Field Studies Map MF-2403.

Gregory, Tom
1913 *The History of Yolo County*. Historic Record Company, Los Angeles, California.

Hackel, Otto
1966 Summary of the Geology of the Great Valley. In *Geology of Northern California*, edited by Edgar H. Bailey, pp. 217–238. Bulletin 190, California Division of Mines and Geology, San Francisco.

Hoover, Mildred, Hero E. Rensch, Ethel G. Rensch, and William N. Abeloe
1990 *Historic Spots in California*. Stanford University Press, Stanford, California.

Johnson, Patti
1978 Patwin. In *California*, edited by Robert F. Heizer, pp. 485-495. Handbook of the North American Indians, vol. 8, William C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Kroeber, Alfred L.
1925 *Handbook of the Indians of California*. Reprinted 1976 by Dover Publications, New York. Originally published 1925, Bureau of American Ethnology Bulletin 78. Smithsonian Institution, Washington, D.C.

1965 The Patwin and Their Neighbors. Reprinted Kraus Reprint Corporation, New York. Originally published 1932, *University of California Publications in American Archaeology and Ethnology*, Vol. 29. University of California Press, Berkeley, California.

Küchler, A.W.
1977 *The Map of the Natural Vegetation of California*. University of Kansas, Lawrence.

Les, Kathleen
1986 *Yolo County Historic Resources Inventory*. Yolo County Community Development Agency. Davis.

Moratto, Michael
1984 *California Archaeology*. Academic Press, Inc., San Diego, California.

National Park Service
1986 *Guidelines for Completing National Register of Historic Places Forms*. Bulletin 16. U.S. Department of the Interior, Washington, D.C.

1997a *National Register Bulletin: How to Apply the National Register Criteria for Evaluation.* U.S. Department of the Interior, Washington, D.C.

1997b *National Register Bulletin: How to Complete the National Register Registration Form.* U.S. Department of the Interior, Washington, D.C.

1999 *Guidelines for Evaluating and Documenting Rural Historic Landscapes*. National Park Service, Washington, D.C.

2000 *Guidelines for Evaluating and Registering Archeological Properties*. National Park Service, Washington, D.C.

Natural Resources Conservation Service
2010a Official Soil Series Descriptions – Brentwood Series. U.S. Department of Agriculture, Lincoln, Nebraska. Accessed at <http://ortho.ftw.nrcs.usda.gov/osd/dat/B/BRENTWOOD.html> on February 5, 2010.

2010b Official Soil Series Descriptions – Corning Series. U.S. Department of Agriculture, Lincoln, Nebraska. Accessed at <http://www2.ftw.nrcs.usda.gov/osd/dat/C/CORNING.html> on February 5, 2010.

2010c Official Soil Series Descriptions – Hillgate Series. U.S. Department of Agriculture, Lincoln, Nebraska. Accessed at <http://www2.ftw.nrcs.usda.gov/osd/dat/H/HILLGATE.html> on February 5, 2010.

2010d Official Soil Series Descriptions – Myers Series. U.S. Department of Agriculture, Lincoln, Nebraska. Accessed at <http://ortho.ftw.nrcs.usda.gov/osd/dat/M/MYERS.html> on February 5, 2010.

2010e Official Soil Series Descriptions – Sehorn Series. U.S. Department of Agriculture, Lincoln, Nebraska. Accessed at <http://ortho.ftw.nrcs.usda.gov/osd/dat/S/SEHORN.html> on February 5, 2010.

Rosenthal, Jeffrey S., and Jack Meyer
2004 *Cultural Resources Inventory of Caltrans District 10 Rural Conventional Highways, Volume III: Geoarchaeological Study, Landscape Evolution and the Archaeological Record of Central California*. Submitted to the California Department of Transportation, District 10, Stockton, California.

Rosenthal, Jeffrey S., Gregory White and Mark Q. Sutton
2007 The Central Valley: A View from the Catbird's Seat. In *California Prehistory: Colonization, Culture and Complexity*, edited by Terry L. Jones and Kathryn A. Klar, pp. 147-163. Alta Mira Press, New York.

Sacramento Area Council of Governments
1999 *Yolo County Airport Comprehensive Land Use Plan.* Sacramento Area Council of Governments, Sacramento, California.

True, D.L.
1980 *Archaeological Surveys in Yolo County California: Chickahominy-Moody Slough Watershed Project.* U.S. Soil Conservation Service, Davis. California. Report on file at the NWIC, S-11740.

United States Army Corps of Engineers
1940 *Woodland, California* 7.5-minute topographic quadrangle.

United States Census
1870 Merritt Township, Yolo County. Accessed via Ancestry.com, February 9, 2010.

United States Geological Survey
1907 *Woodland, California* 7.5-minute topographic quadrangle.

Wagner, D.L., C.W. Jennings, T.L. Bedrossian, and E.J. Bortugno
1991 *Geologic Map of Sacramento Quadrangle, California 1:250,000*. California Division of Mines and Geology, Sacramento.