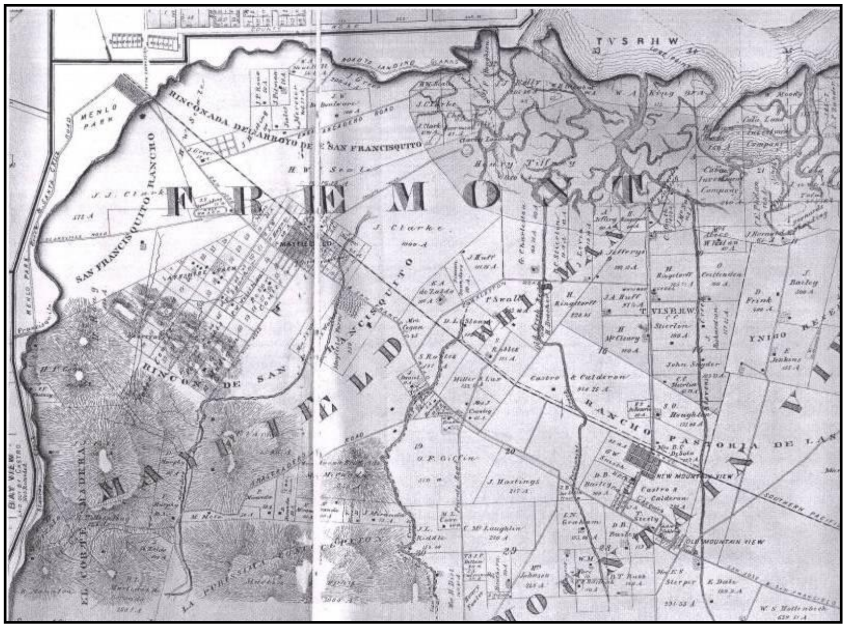
Appendix K – Cultural Resources Assessment Report

CULTURAL RESOURCES ASSESSMENT REPORT
Palo Alto Recycled Water Facility Project
Palo Alto, Santa Clara County, California



PREPARED FOR:

RMC WATER AND ENVIRONMENT
2290 North First Street, Suite 212
San Jose, CA 95131

PREPARED BY:

WILLIAM SELF ASSOCIATES, Inc.
PO Box 2192
Orinda, CA 94563
(925) 253-9070

February 2015

Confidential - Not for Public Distribution

CULTURAL RESOURCES ASSESSMENT REPORT
Palo Alto Recycled Water Facility Project
Palo Alto, Santa Clara County, California

PREPARED BY:

Allen Estes, Ph.D., Nazih Fino, M.A.,

CONTRIBUTORS TO EARLIER VERSIONS OF THE REPORT
Eric Strother M.A., RPA, Paul Farnsworth, Ph.D., RPA,
Drew Bailey B.A., and Melinda Hickman M.A., RPA

SUBMITTED BY:

James Allan Ph.D. Principal Investigator

Project Number 2014-101
Report Number 2014-67

February 2015

Confidential - Not for Public Distribution

Cover Photo: 1876 Thompson and West Historic Atlas Map of Santa Clara County, California

Table of Contents

Figures

Tables

Appendices

Management Summary

RMC Water and Environment (RMC) has contracted with William Self Associates, Inc. (WSA) to conduct a cultural resource assessment of the Palo Alto Recycled Water Facility Project. The proposed project is located in Township 6 South, Range 3 West, Section 11, and Township 6 South, 2 West, Section 8 as depicted on the Palo Alto, California 7.5' USGS topographic quadrangle maps.

A records search conducted on October 23, 2014 at the Northwest Information Center at Sonoma State University (NWIC) indicated that one previously recorded resource (a historic railroad, P-43-000928) crosses the project APE and 15 other previously recorded archaeological sites are located within 1/4-mile of the project area. A total of 91 cultural resource studies have been conducted within 1/4 mile of the project APE. Twenty-two studies include or cross some portion of the project components, while the remaining 69 studies do not include project components but have been conducted within ¼-mile of the project's area of potential effects (APE).

WSA contacted the Native American Heritage Commission (NAHC) with a request for information on sacred sites or traditional cultural properties within the project area, and for a list of interested Native American representatives. No information on sacred sites or traditional cultural properties was obtained from either the NAHC or from any of the interested Native American representatives, whom WSA contacted by letter.

WSA created a formal vertical APE map. In order to prepare this figure and the related analysis of the relationship between construction disturbance and archaeological sensitivity, WSA created an archaeological sensitivity model based on soil type, slope, and distance to nearest water that calculates areas of high, medium and low archaeological potential within the project area. Seven areas of either high or high-to-moderate archaeological sensitivity were identified along the project alignments, most of which occur at creek crossings.

WSA conducted pedestrian archaeological surveys of the proposed project area on October 24, 2014. No new archaeological sites were identified during the survey. The proposed site of the recycled water facility is located entirely along developed residential and commercial regions within the City of Palo Alto, which are paved with concrete or recently landscaped. No cultural materials were identified within the proposed project area. No adverse impacts are anticipated during the construction of the facility. Because of the high archaeological sensitivity of portions of the project area, subsurface monitoring is recommended for these areas.

1.0 Introduction

1.1 National Historic Preservation Act Compliance

The City of Palo Alto is the Lead Agency for the project, which is applying for Title XVI grant monies from United States Bureau of Reclamation (Reclamation). Through the Title XVI program, Reclamation identifies and investigates opportunities to reclaim and reuse wastewaters and naturally impaired ground and surface water in the 17 Western States and Hawaii. Authorization of Title XVI funding necessitates compliance with Section 106 of the National Historic Preservation Act (NHPA) as an "undertaking." The City of Palo Alto is also applying for State Revolving Fund (SRF) funding from the State Water Resources Control Board (SWRCB). Because this program is partially funded by the United States Environmental Protection Agency (EPA) and is subject to federal environmental regulations, it must also comply with federal cross-cutting regulations, including compliance with the NHPA. The present cultural assessment report will serve as the historic properties inventory for purposes of complying with Section 106 of NHPA and the implementing regulations found at 36 CFR Part 800.

1.2 Cultural Resources Assessment Report

William Self Associates, Inc. (WSA) conducted the cultural resources assessment for the Project under contract to RMC, who is coordinating all of the environmental studies for the Project. This Cultural Resources Assessment Report (CRAR) is a revision of the 2009 version. To complete this revision, WSA scope of work included:

- Develop an approved vertical Area of Potential Effects (APE) map and the related analysis of the relationship between construction disturbance and a more detailed discussion of archaeological sensitivity and the likelihood of encountering buried archaeological sites within the project alignment.
- Consult with the California Historical Resources Information System, Northwestern Information Center (NWIC) at Sonoma State University to conduct a new records search of the project area in order to identify known archaeological sites and previous surveys in or near the project area. Review all archaeological site records for sites within the limits of the archaeological APE. Review of additional data on the history and prehistory of the APE on file at WSA, and other sources as necessary.
- Contact the Native American Heritage Commission (NAHC) in Sacramento to describe the project and request a listing of local, interested Native American representatives. Request the NAHC to review their Sacred Lands file for information on traditional or cultural lands within the vicinity of the project area. Contact the individuals or tribal members on the contact list and solicit comments regarding individual knowledge about sacred sites or traditional lands within the project area.

- In accordance with CEQA Sections 15064.5 and 15126.4 and NHPA Section 106, as a means of evaluating the potential impacts to archaeological resources, WSA's 36 CFR 61-qualified archaeological staff conducted a pedestrian archaeological survey of the archaeological APE.

1.3 Background

The Palo Alto Recycled Water Project (Project) is an extension of the City of Palo Alto Water Reuse Program. Phase 1, completed in 1980, serves the Palo Alto Golf Course, Emily Renzel Marsh, Greer Park, and the Regional Water Quality Control Plant (RWQCP). Phase 2, completed in 2009, is the Mountain View Recycled Water project, which serves the City of Mountain View. The proposed City of Palo Alto Recycled Water Project (Project) would serve customers in the City of Palo Alto, potentially including Alta Mesa Memorial Park, Stanford Research Park, and others. The project area extends southeast from its connection to the existing system, along highway 101 near Adobe Creek, approximately four miles southwest through the City of Palo Alto, in Santa Clara County (Figures 1 and 2).

1.4 Project Description

The Project proposes the construction of a recycled water pipeline and associated facilities to provide an alternative water supply for non-potable uses. The proposed Project would involve the construction of approximately 5 miles of 12- to 18-inch pipes, approximately 5 miles of 6- to 10-inch lateral pipelines to over 50 use sites, an up to 1,500 square-foot booster pump station along the proposed pipeline, and an up to 1,600-square-foot pump station at the RWQCP. The Project would initially serve approximately 900 acre-feet per year (AFY) of recycled water, primarily to the Stanford Research Park Area. Future extensions could serve Stanford University and Los Altos Hills, as well as provide a loop by making a second connection to the Phase 2 Mountain View Project. These future extension projects would undergo project specific environmental review by the appropriate lead agency as they are proposed. The predominant use of recycled water for this Project is landscape irrigation. Some industrial use, such as toilet flushing, commercial and light industrial cooling towers, could also be included at a later date. The locations of the proposed Project components are shown in Figure 3.

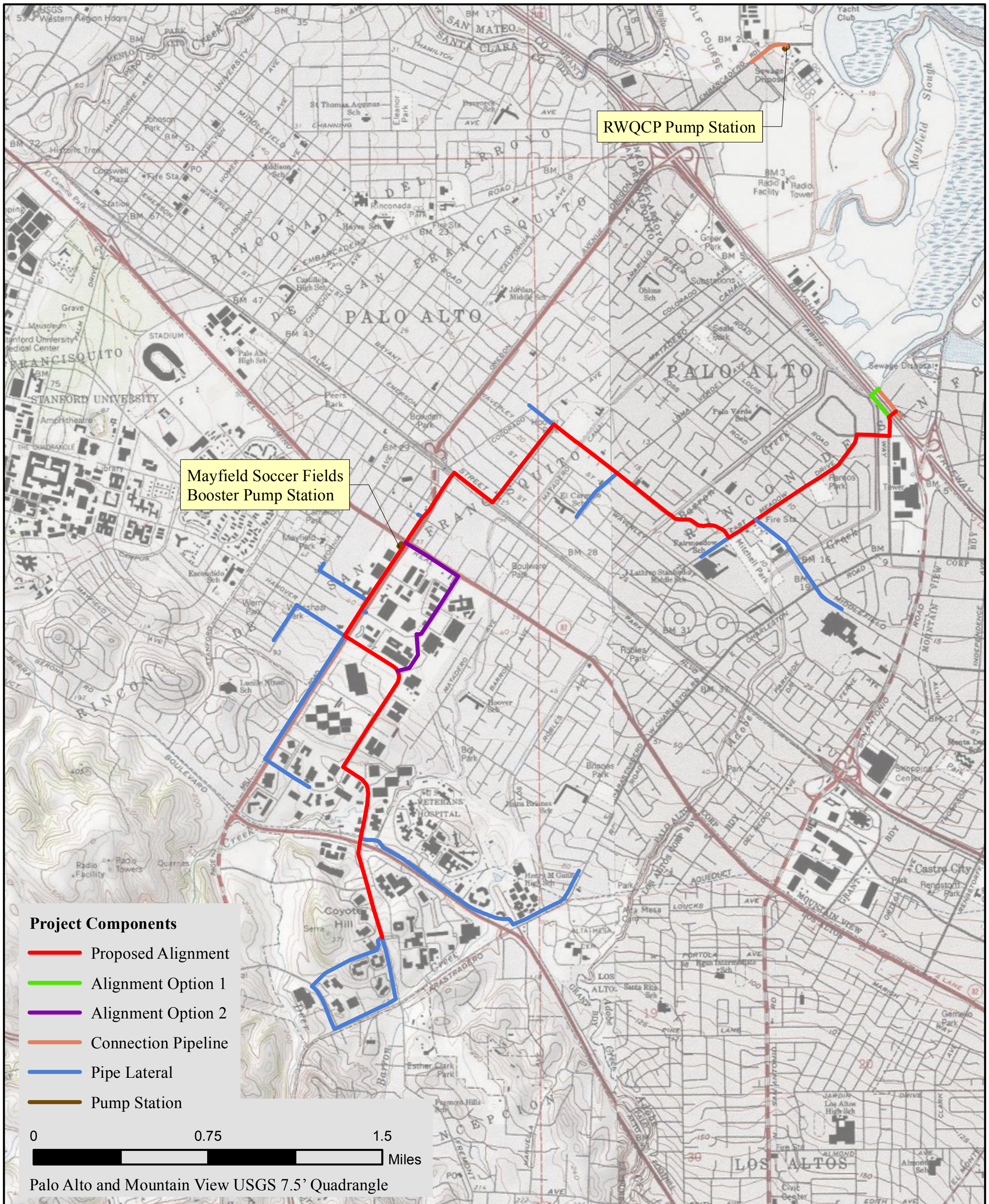
Pipelines -- the proposed distribution system consists of the "backbone" pipeline and lateral pipelines. The backbone pipeline would be located in urban areas, along existing road rights-of-way (refer to Figure 3). The proposed backbone pipeline alignment would begin in the north with a connection point to the existing 24-inch recycled water pipeline that was constructed as part of the Mountain View Project, in the vicinity of East Bayshore Road and Corporation Way. The pipeline would cross under US-101, and run along Fabian Way to East Meadow Drive where it would cross Adobe Creek. The pipeline would run along East Meadow Drive across Middlefield Road, and then continue along East Meadow Drive, Cowper Street, and El Dorado Avenue to Alma Street, along Alma Street to Page Mill Road, and along Page Mill Road to El Camino Real.

WSA

Project Vicinity Map

Figure 1
RMC
Palo Alto Recycled Water Facility Project
Palo Alto, CA

WSA	Project Area Map	Figure 2 RMC Palo Alto Recycled Water Facility Project Palo Alto, CA



WSA	Project Location	Figure 3 RMC Palo Alto Recycled Water Facility Project Palo Alto, CA

The pipeline would continue across El Camino Real, along Page Mill Road to Hanover Street, and along Hanover Street and Hillview Avenue to Arastradero Road. Two pipeline alignment options could potentially replace segments of the proposed backbone pipeline alignment depending on constructability and design considerations, as shown in Figure 3. Roads included in the backbone pipeline alignment, including the options, are detailed in Table 1.

Table 1: Proposed backbone pipeline alignment

Alignment Location	Starting Cross Street	Ending Cross Street	Proposed Construction Method at Crossings
Proposed Backbone Pipeline Alignment			
Under US-101	E. Bayshore Rd. at Corporation Way	Fabian Way	Trenchless under 101
Fabian Way	West Bayshore Road	East Meadow Drive	Open-Cut1
East Meadow Drive	Fabian Way	Cowper Street	Open-Cut; Potential trenchless[2] section across Adobe Creek Bridge
Cowper Street	East Meadow Drive	El Dorado Avenue	Open-Cut; Potential trenchless sections across Barron Creek Bridge and Matadero Creek Bridge
El Dorado Avenue	Cowper Street	Alma Street	Open-Cut
Alma Street	El Dorado Avenue	Page Mill Road	Open-Cut
Page Mill Road	Alma Street	Hanover Street	Open-Cut; Trenchless section under railroad crossing; Potential trenchless section under El Camino Real
Hanover Street	Page Mill Road	Hillview Avenue	Open-Cut
Hillview Avenue	Hanover Street	Arastradero Road	Open-Cut; Potential trenchless section across SFPUC Easement and Foothill Expressway
Proposed Pipeline Alignment Option 1			
Adobe Creek	US-101	West Bayshore Road	Trenchless (hang from the bridge)
West Bayshore Road	Adobe Creek	Fabian Way	Open-Cut
Pipeline Alignment Option 2			
El Camino Real	Page Mill Road	Hanson Way	Open-Cut
Palo Alto Square Parking	Hanson Way	Hanover Street	Open-Cut

[1] The open-cut construction method involves long, narrow excavations in the ground to accommodate the placement of the pipelines. An alternate construction method to open-trench is Horizontal Directional Drilling. Both types of construction methods are described in Section 2.4 below.

[2] All of the bridge crossings would be trenchless (constructed with the pipe attached to the side of the bridge or installed underneath the bridge). The construction method has not been finalized. Neither method would require work to be done in the creeks.

Lateral pipeline alignments would run along existing side streets from the proposed backbone pipeline alignment or alignment options to serve individual users as shown in Figure 3.

Booster pump station -- the booster pump station would be constructed as part of the proposed Project to maintain a minimum delivery pressure of 65 pounds per square inch (psi) for end users. The proposed booster pump station would be located at 2700 El Camino Real, on the southeast corner of the Page Mill Road and El Camino Real intersection at the Mayfield Soccer Fields. The site is on the proposed pipeline alignment and located in a strategic area for delivering recycled water to the majority of demands along the pipeline. The park is owned by Stanford and leased to the City of Palo Alto.

The proposed booster pump station would be constructed below grade at the parking lot because of the prominent visual location and to avoid effects on existing recreational uses. The pump station would have a peak flow rate of 2,860 gallons per minute (gpm), which would require a total installed horsepower (hp) of 400 hp, including standby pumps. The footprint would be approximately 50 x 30 feet (1,500 square feet).

RWQCP pump station -- The Phase 2 Project planning study and hydraulic model assumed that adequate pumping capacity would be available at the RWQCP to maintain minimum delivery pressure for end users. The RWQCP has since built a pump station at the facility to deliver 6.24 mgd of recycled water flows to Phase 2 users. These pumps were not designed to provide capacity for the Palo Alto recycled water project during peak flow conditions. Phase 2 pump station construction was completed in 2009.

To accommodate the Project and achieve the minimum acceptable pressure at the Phase 2 connection point during peak flows, additional pumping capacity would be necessary at the RWQCP. The RWQCP pump station would have a capacity of 4.8 mgd (3,310 gpm) requiring a 350 hp facility. Several preliminary siting options have been identified for the pump station. The final site would be determined during detailed design. It is possible that a pump station could be located elsewhere on the north side of the plant, but it would be located entirely within the plant footprint and would avoid removal of trees. Options include the following:

1. Installation of the additional pump in the basement of the existing administrative building and relocation of the existing marsh pump to the contact tank outlet box. No new piping is needed for this option to connect to the recycled water system, as existing pipes are in place.

2. Construction of the pump station within the existing, empty chlorine contact tank in the northwestern portion of the plant. A new pipeline would be needed to connect to the existing recycled water system. The pipeline would likely be routed on paved ground

through the northern entrance of the plant (located northeast of the chlorine tank), then along Embarcadero Road to its connection with the existing 30-inch pipeline on Embarcadero Way.

3. Construction of the pump station adjacent to and northeast of the existing contact tank. Similar to the above option, a new pipeline would be needed.

If located outside existing structures, the pump station could require a footprint of up to 40 feet x 42 feet (1,680 square feet) and would be up to 12 feet tall and enclosed or covered. While this would be located above ground and excavation would be 5 to 6 feet, the pump cylinders would likely be 20 foot down for the pump station that is located outside existing structures. Note that excavation would not be required for the other options within existing structures. This structure would be subject to the City's design review to address all aesthetic concerns.

1.2 Project Construction

The following section outlines the pipeline installation techniques under consideration for use in the Project. Final plans have not been completed and one or more of the techniques described below may be used in the construction of the Project.

All pipeline construction would occur within public roadways. An easement from the California Department of Transportation (Caltrans) would be required to construct the pipeline across and along US-101. An easement from Santa Clara Valley Water District (SCVWD) would be required to cross all creeks and the SCVWD rights-of-way. This includes easements to install hanging pipes on bridges. A Peninsula Corridor Joint Powers Board (JPB) Property Access Agreement may be required for the railroad crossings. Construction of the backbone and lateral pipelines would generally consist of open-cut construction, except at crossings (e.g., creek, railroad, or road). A variety of trenchless construction methods could be employed at these locations. Alternatively, horizontal directional drilling (HDD) may be used along the entire alignment, except at pipeline tie-ins (i.e., connection to existing pipelines). A description of each technique is described below.

Open-Cut Pipeline Construction -- Open-cut construction (also referred to as open trench with shoring or cut-and-cover) is the proposed option for installing the majority of the pipeline along existing roadways. The open-cut trench would be approximately three feet wide and approximately four to eight feet deep. Shoring may be required to provide trench stability. Where this method is used within roadways, the existing pavement would be cut, removed and replaced during the course of the construction. To prevent discharge into creeks, requirements for erosion control would be included in construction specifications for all construction in the vicinity of creeks.

Pipeline construction would typically require a minimum of one lane of traffic and the adjacent shoulder and/or bike lane (if they exist), resulting in a construction corridor approximately 20 to 30 feet wide. It is expected that open trench construction within paved roadways would proceed at the rate of approximately 200 to 300 feet per day. Given the rate of construction, pipeline installation would occur for a relatively brief period of time (at most a few days) at any one location along the pipeline alignment. Excavated trench materials would be side cast within approved work areas and reused as appropriate for backfill. After pipeline construction and installation is complete, the pavement would be restored to preconstruction conditions.

Trenchless Pipeline Construction -- Trenchless construction methods would be used for selected roadway, railroad, and creek crossings. Trenchless construction methods minimize the area of surface disruption required for pipeline installation and include: jack and bore, microtunneling, and HDD. Hanging pipes on existing bridge structures is another potential trenchless approach. Trenchless pipeline installation methods are described following a discussion of the crossings.

The proposed alignment, alignment options, and laterals would cross three creeks: Adobe Creek, Barron Creek, and Matadero Creek. The creek crossings would be constructed as follows:

- Adobe Creek. There are four proposed Adobe Creek crossings. The first crossing is associated with the proposed alignment on East Meadow Drive, west of US-101. The pipeline would be attached to the existing East Meadow Drive Bridge on the south side of the bridge or installed in the roadway on the bridge. The second crossing is associated with the Option 1 alignment, where the existing Adobe Creek crosses under US-101. The pipeline would be hung on the south side of the existing bridge. The third crossing is associated with a lateral pipeline on Middlefield Rd, which would require crossing Adobe Creek using trenchless techniques at the Middlefield Road bridge. The fourth crossing at Arastradero Road would involve a lateral pipeline crossing either above or below Adobe Creek, as the creek is culverted at this location.

- Barron Creek. The alignment crosses Barron Creek, which flows in a concrete channel, on the Cowper Street Bridge. The pipeline would either be installed attached to the downstream side of the bridge or installed in the roadway on the bridge. A lateral pipeline would be constructed at Miranda Avenue using trenchless techniques.

- Matadero Creek. There are two Matadero Creek crossings. At the Cowper Street crossing, a bridge crosses Matadero Creek, which flows in a concrete channel. The pipeline would either be installed attached to the downstream side of the bridge or installed in the roadway on the bridge. At the Hillview Avenue crossing, Matadero Creek flows through a 12-foot wide box culvert below the roadway. The pipeline would be installed in the roadway, above the culvert.

In addition to the creek crossings, a trenchless railroad crossing would occur on Page Mill Road between Alma Street and Park Boulevard. Another trenchless crossing may occur on Hillview Avenue at the intersection of Foothill Expressway to cross a San Francisco Public Utilities Commission (SFPUC) right-of-way. Trenchless construction may also be used to cross busy intersections, at Page Mill Road and El Camino Real, and Hillview Avenue and Foothill Expressway

Table 2: Trenchless creek and road crossings

Location	Crossing
Adobe Creek	US 101
	East Meadow Drive
	Middlefield Road[1]
	Arastradero Road[1]
Barron Creek	Cowper Street
	Miranda Avenue[1]
Matadero Creek	Cowper Street
	Hillview Avenue
Page Mill Road	Railroad crossing between Alma Street and Park Boulevard
	El Camino Real
Hillview Avenue	SFPUC easement at intersection of Foothill Expressway
	Foothill Expressway

Note: [1]Lateral pipeline

Bore and Jack Construction -- Bore and jack is a trenchless pipeline installation method that is often used for major roadway intersections and railroad crossings. Boring and jacking would involve the use of a hydraulic jack and auger stem (situated in a pit located at one end of the crossing) to simultaneously push a casing through the hole under the crossing while removing spoil from within the jacked casing. The pipeline is then installed in the casing. The jacking pit is excavated (and shored) with typical dimensions of 8 to 12 feet wide and 15 to 20 feet long. The depth would depend on the feature to be avoided (e.g., creek, railroad, or road) as well as the presence of any existing utilities underground. The typical depths of construction for this and other trenchless methods are shown in Table 3 below.

Table 3: Trenchless creek and road crossings with construction depths

Location	Range of Construction Depth (feet)
Connection Point on East Bayshore Rd.	4 – 6
Highway 101 Crossing (trenchless)	25 – 30
East Meadow Drive at Adobe Creek	15 – 17
Middlefield Rd at Adobe Creek	15 – 17
Cowper St at Barron Creek	12 – 14
Cowper St at Matadero Creek	8 – 10
Page Mill Road (railroad crossing)	4 – 20
Page Mill Road (El Camino Real crossing)	8 – 10
Page Mill Road	6 – 8

Hillview Ave. and Arastradero Rd.	4 – 8
Hillview Ave. at Matadero Creek	20 – 24
Hillview Ave. (Foothill Expy Crossing)	25
Miranda Ave. at Barron Creek	15 – 17
All other open cut segments, including laterals	4 – 8

Shoring, appropriate to the pit depth, would be used to secure the walls. In addition, the back wall of the receiving pit would need to be constructed so as to withstand the reactive forces from the jacking frame. An additional area of up to 2,000 square feet may be needed around the pit for temporary storage of pipe sections and for loading material removed from the bore. The receiving pit at the other end of the crossing would be smaller, encompassing approximately 100 square feet. Pits and work areas would be located within existing ROW and along streets, where appropriate. It would take an average of approximately one month to complete pipeline installation at a 40-foot concrete-lined creek crossing, such as Adobe Creek at US 101, using the boring and jacking technique. After pipeline construction and installation is complete, the work area would be restored to preconstruction conditions.

Microtunneling -- Microtunneling is a remotely controlled pipejacking process that provides continuous positive control of earth and groundwater pressures at the face of the excavation. Jacking pipes are pushed by a microtunneling boring machine (MTBM) into the ground from a jacking pit to a receiving pit on opposite sides of the crossing. The carrier or product pipe[1] may be jacked directly or installed inside an oversized casing in a separate operation.

A cutterwheel[2] excavates material at the face as the machine is jacked forward. The excavated material is mixed with clean slurry[3] and pumped to the surface for separation and muck removal. Microtunneling machines have a closed face, thus limiting the size of rock or other object that can be ingested. Most machines are only capable of handling cobbles and boulders less than or equal to 20 to 30 percent of the outside diameter of the shield. In addition, large quantities of smaller cobbles can stall a MTBM by clogging the crushing chamber with rocks before they can be crushed and ingested. Therefore, microtunneling is not a preferred method when large quantities of cobbles and boulders or other objects are anticipated.

Slurry pressure and mechanical face pressure are used to support the face of the excavation when ground conditions are loose or soft. In high groundwater conditions the slurry excavation system prevents inflow of water into the pipeline. Microtunneling is typically used in a wide variety of soil types, including rock and stable soils to loose, flowing, or otherwise unstable soils.

[1] The carrier or product pipe is the pipe that is being installed, in this case a recycled water pipeline.
[2] Cutter wheels or cutting wheels enable excavation of the drill head or end of the microtunneling machine through the ground.
[3] Slurry is used as a lubricant to reduce friction while drilling and provide support in the gaps between the edge of the drilling machine and the ground.

Microtunneling provides continuous control of line and grade by use of a guidance system and steering jacks. The guidance system usually consists of a reference laser mounted in the jacking shaft that transmits its beam onto a target mounted inside the articulated section of the MTBM. This information and other operational performance information are transmitted through wire cables to the MTBM control cabin at the surface where the MTBM is remotely controlled.

Jacking pits for microtunneling are typically 12 to 16 feet wide by 24 to 32 feet long (typical maximum approximately 500 square feet). Receiving pits are typically 12 to 16 feet square. Pit depths would vary depending on the feature being avoided as well as the presence of any existing utilities underground. The range of depths associated with construction is shown in Table 3 above. A work area (including the area of the pits) of up to 10,000 to 20,000 square feet is required at the jacking pit. Work area at the receiving pit can be smaller, but is typically a minimum of 8,000 square feet. Off-site staging areas can be used to reduce work areas at each shaft. Pits and work areas would be located within existing ROW and along streets, where appropriate. Pipeline installation at a 40-foot concrete-lined creek crossing using the microtunneling technique would take an average of approximately two months to complete. After pipeline construction and installation is complete, the work area would be restored to preconstruction conditions.

Horizontal Directional Drilling (HDD) -- HDD is a trenchless pipeline installation method that can be used for crossing major roadway intersections, creeks, and as an alternative to open-cut construction. HDD crossings are installed by using a drill rig tilted at the top at an angle of up to ten degrees from horizontal. The bore entry holes are drilled from the starting point to the destination point. In preparing the hole, a small diameter (3-inch wide) pilot hole is first drilled from the entry pit in a gentle arc from the drill rig to the completion hole on the other side of the area to be crossed. Alternatively, the pilot hole is drilled along a pre-determined horizontal and vertical alignment from the entry site to the exit site. This pilot hole can be guided using magnetic readings transmitted from the drill bit back to the drill rig.

After the initial hole is drilled, the final bore entry pit, approximately 10 feet square by approximately 8 feet deep, is constructed and is used as the collection point for Bentonite drilling mud and drill spoil. The pilot hole is then enlarged by pulling larger reamers, or reaming heads[4], from the pilot exit pit back towards the drilling rig. The pipeline is then pulled into place behind the last reamer head.

During the directional drill procedure, drilling mud is injected into the drill and recovered from the entry hole until the drill bit surfaces at the exit pit. Once the drill bit surfaces, the drilling mud is recovered at both the entry and exit hole, pumped into tanks and transported back to the

[4] Reamers are tools used to create accurate sized holes.

rig location for cleaning and eventual reuse. The drilling equipment and materials require a work area of approximately 2,500 square feet. An additional area of approximately 2,000 square feet is needed for loading materials removed from the bore. Pits and work areas would be located within existing ROW and along streets, where appropriate. Pipeline installation at a 40-foot concrete-lined creek crossing using HDD would take an average of three weeks to complete.

If HDD is used for the installation of the entire pipeline, then pits would be located throughout the pipeline alignment. The frequency of construction pits would vary depending on pipe size, existing underlying utilities, and other environmental conditions. Typically, for an 18-inch pipe, the construction pits would be located approximately every 500 to 1,000 feet due to the increased force necessary to install large pipes. Smaller pipe sizes would require less frequent pit locations because they can be installed in longer segments. Pipes would be installed at variable depths depending on existing underlying utilities, soil types, environmental constraints, entry and exit constraints, and bend radius of the installed product and drill pipe. Other pit depths would vary depending on the feature being avoided as well as the presence of any existing utilities underground. The range of depths associated with construction is shown in Table 3 above.

Installation of pipeline using HDD would proceed at the rate of approximately 100 feet per day for 18-inch pipe, and at greater rates for smaller pipe segments. Some pipeline installation would require construction in existing roadways.

Hanging on Existing Structures -- Hanging pipes from existing structures is a potential method for installing pipelines over creeks where existing bridges can provide structural support for the pipeline. No excavation would be required for placement of the hanging pipeline crossings, and no disruption of the creek channel would be required. The pipeline would be installed externally on the side or under the bridge. There would be no construction equipment within the wetted limits of the creek channels. Pipeline would be installed from the bridge where feasible; however, equipment may be on the banks of the channel or adjacent land in order to secure the pipeline to the bridge, but would not have to enter the wetted perimeter of the creeks.

US-101 Crossing -- As described above, two options to cross underneath US-101 include using trenchless construction technique under the proposed alignment and hanging from an existing bridge under Option 1. The precise option and the locations would be determined during design. If trenchless construction is employed, the pits could be located within any open area (e.g., on existing parking lots). Depending on the location, landscaped trees may be trimmed and/or removed to accommodate the pits and other activities in the work area. Existing parking spaces would be temporarily eliminated. Construction would require the City to work with the land owner to accommodate temporary loss of parking and disruption. If the pipeline is hung from the existing bridge on the south side of Adobe Creek, then construction would likely occur during the non-rainy season (April 16 through October 14), when the Adobe Creek Pedestrian Path is open. However, installation of the proposed pipeline would require temporary closure of the existing path for several days to a week.

Connection to the Existing 24-inch Recycled Water Pipeline (Mountain View Project) -- The proposed pipeline would be connected to the existing 24-inch pipeline along East Bayshore Road at the intersection with Corporation Way. Depending on the precise location of the Highway 101 crossing, a short connection pipeline may need to be constructed; this connection pipeline would be constructed via open cut construction. Because of this stub out, a system shutdown is not required when the proposed pipeline is connected to the existing pipeline.

Pump Station Construction -- The booster pump station at Mayfield Soccer fields would require cutting the pavement, excavation and shoring, placement of the structure underground, and refinishing the pavement, and surrounding sidewalks / curb, as applicable. After the structure has been constructed, electrical equipment (e.g., machinery control consoles, panels, switchboards, lighting) would be installed and other site preparation (installing conduits and cables) would occur. Approximately five crewmembers would be needed for construction.

The pump station proposed at the RWQCP would be either installed within existing structures or located outside, adjacent to the existing, empty contact tank. Regardless of the location, it would be constructed entirely within existing City property. If located outside of existing structures, construction would involve excavation, installation of the pump station, electrical equipment, and erection of an enclosure if necessary. If the structure is located within an existing structure, then work would consist of installation of the pump. Relocation of the existing marsh pump may be necessary if the proposed pump is installed within the basement of the administration building. The connection pipeline segment along Embarcadero Road would be installed via open trench construction. Construction of each pump station is estimated to take approximately six months.

1.3 Project Location and Area of Potential Effects

The project is located in Township 6 South, Range 3 West, Section 11, and Township 6 South, 2 West, Section 8 as depicted on the Palo Alto, California 7.5-minute USGS topographic quadrangle maps.

The Area of Potential Effects (APE) assumes a 5-foot wide trench for all open cut trenching. The dimensions of all other components are based on the project description above. All depths are below ground surface and all maximum depths for each component as described in the project description above are used for the vertical APE. The vertical APE depicts the maximum potential impacts from project construction based on the information provided in the project description above. The vertical APE is presented in Figure 4-Maps 1-7.

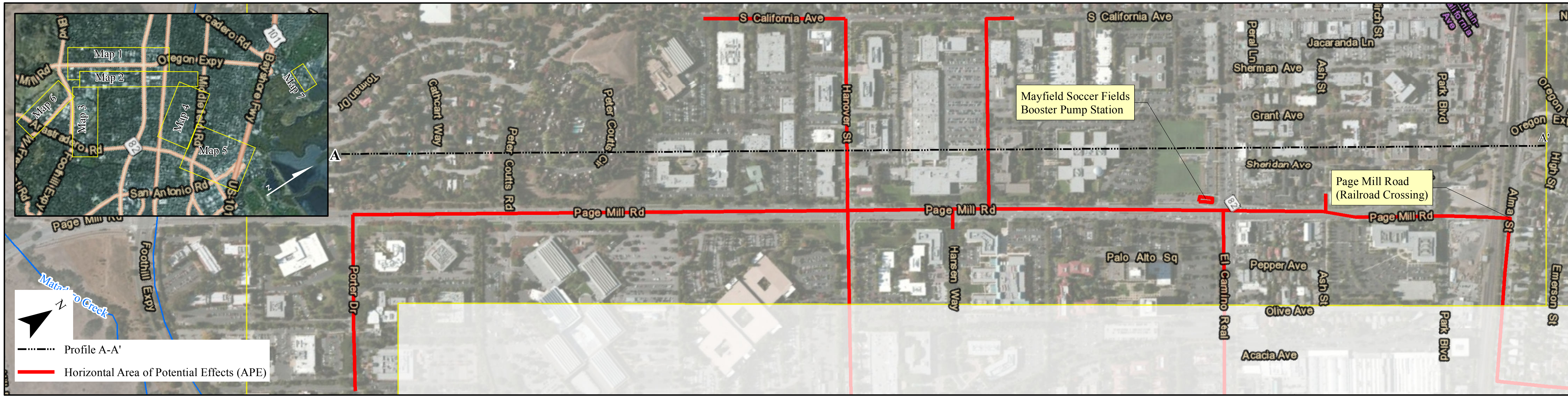
2.0 Setting

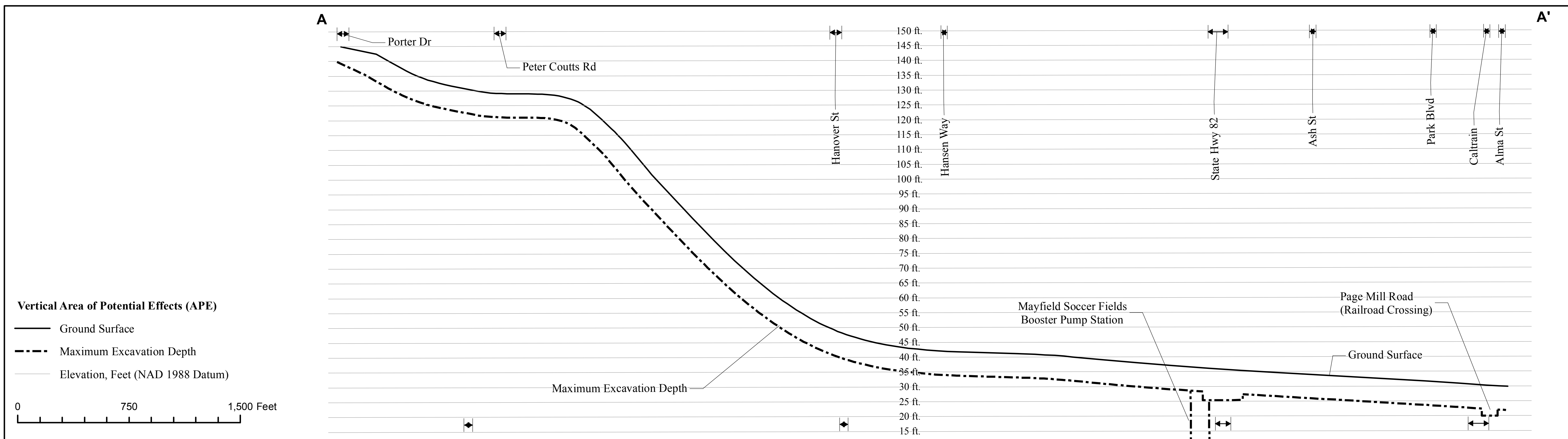
2.1 Environmental Setting

The project area is located along the Palo Alto Baylands on the southeast portion of the San Francisco Peninsula, which lies along the southwest boundary of the San Francisco Bay. The project area ecology, though heavily impacted by urban and industrial development, is coastal littoral, which consists of land strips along the coast that are characterized by a series of microenvironments including estuaries, bays, marshes, and grassy terraces (Chartkoff and Chartkoff 1984). The eastern portion of the project area, near Highway 101, is an area of historic fill that extends eastward into the Palo Alto Baylands. The Palo Alto Airport and Municipal Golf Course are located approximately two miles northeast of the project area. Byxbee Park and the Palo Alto Baylands Nature Preserve, consisting primarily of restored marshes, are located approximately 1½-miles northeast. The project area extends approximately four miles southeast, through the easternmost portion of the city of Palo Alto, and ends within one mile of Highway 280, with the Los Altos Hills to the south and Portola Valley to the west.

The climate of the project area is Mediterranean; mild, rainy winters, and hot, dry summers. Annual precipitation in the area is 15 inches, with rainfall concentrated in the fall, winter, and spring. The San Francisco Peninsula's proximity to the Pacific Ocean provides for mild temperatures throughout the year. Winter temperatures vary from an average high of 57.2°F to an average low of 37.7°F; summer temperatures vary from an average high of 78.4°F to an average low of 54.4°F.

Prior to Euroamerican contact, the Native Americans used fire to manage native flora and fauna, maintaining grassland and chaparral by periodic burning. In prehistoric times, animals such as pronghorn sheep, antelope, tule elk, mule deer, black-tail deer, and grizzly bear occupied the area. Today, animal life within the region is similarly diverse but favors small, herbivorous mammals, especially voles, pocket gophers, ground squirrels, and pocket mice. The larger, open areas of the surrounding hills are home to some larger animals including deer, coyote, rabbit, skunk, opossum, raccoon, and a number of birds including red-tailed hawks and turkey vultures.

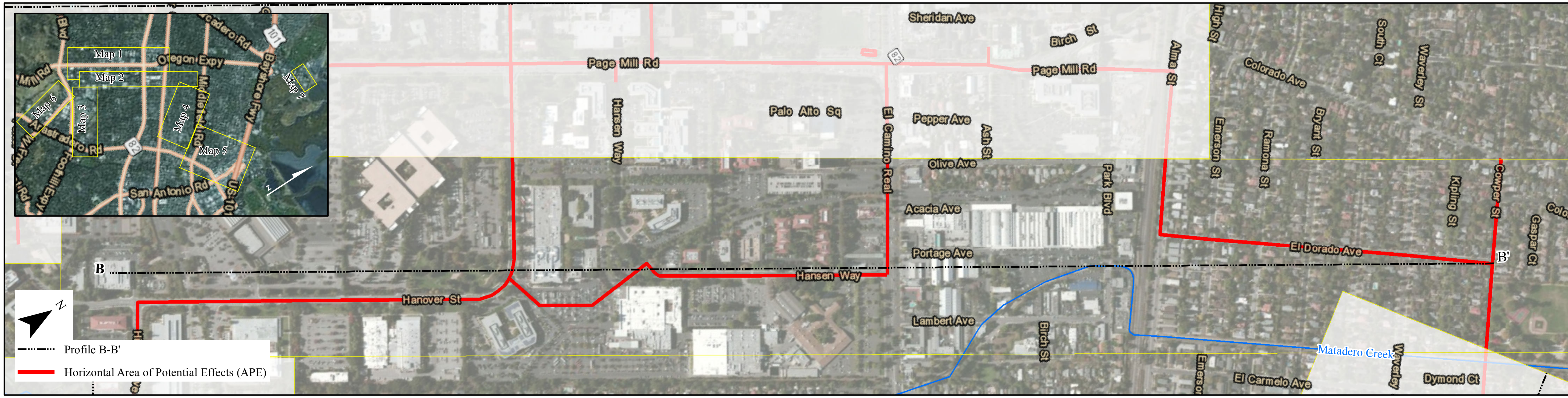


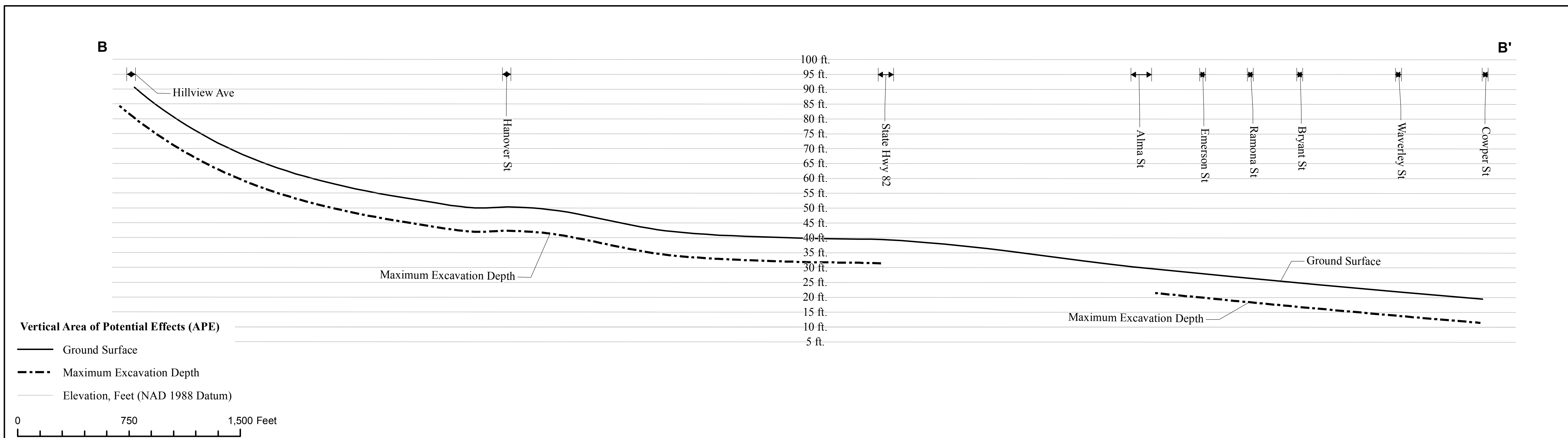


WSA

Archaeological Horizontal and Vertical Area of Potential Effects

Figure 4
Map 1 of 7
RMC
Palo Alto Recycled Water Facility Project
Palo Alto, CA

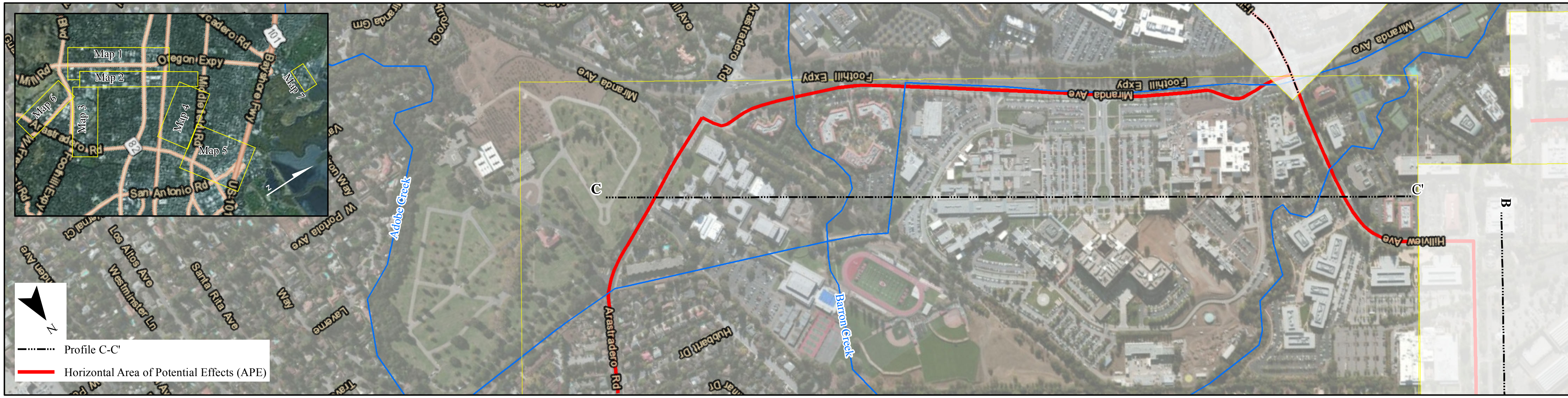


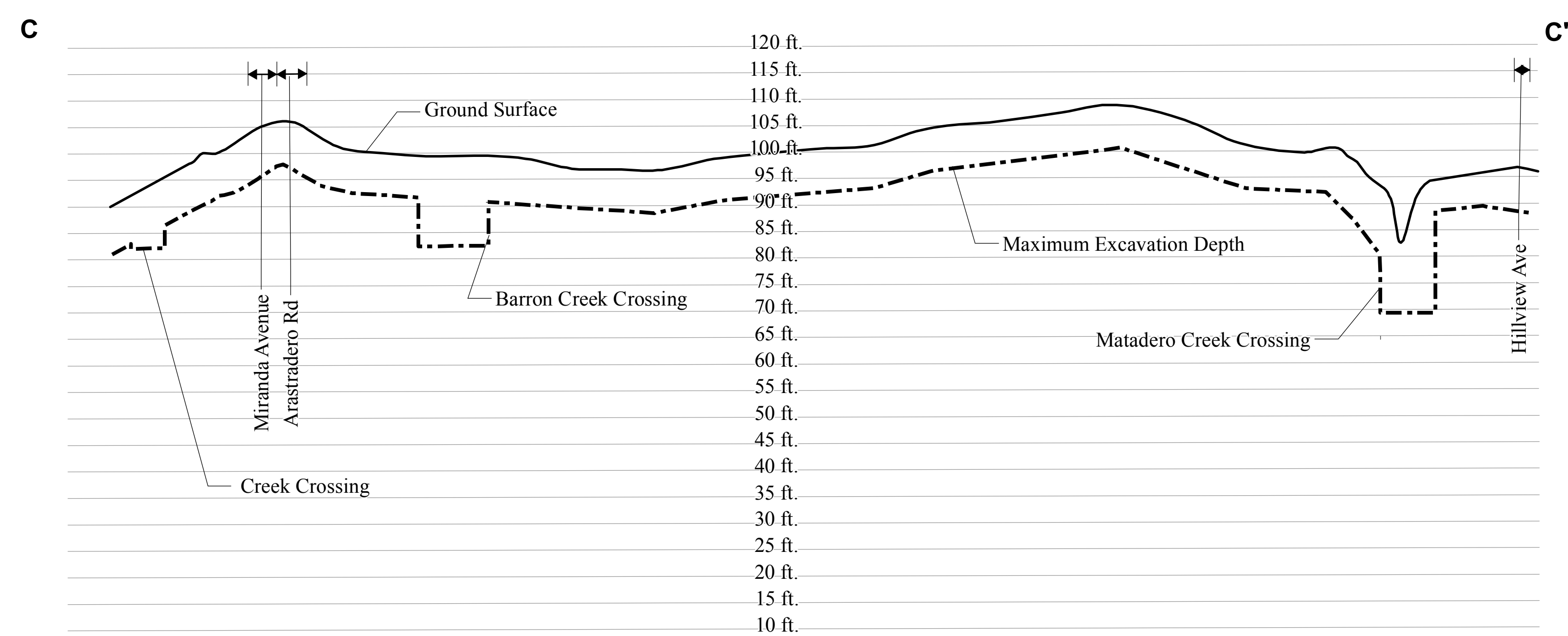


WSA

Archaeological Horizontal and Vertical Area of Potential Effects

Figure 4
Map 2 of 7
RMC
Palo Alto Recycled Water Facility Project
Palo Alto, CA





Vertical Area of Potential Effects (APE)

Ground Surface

Maximum Excavation Depth

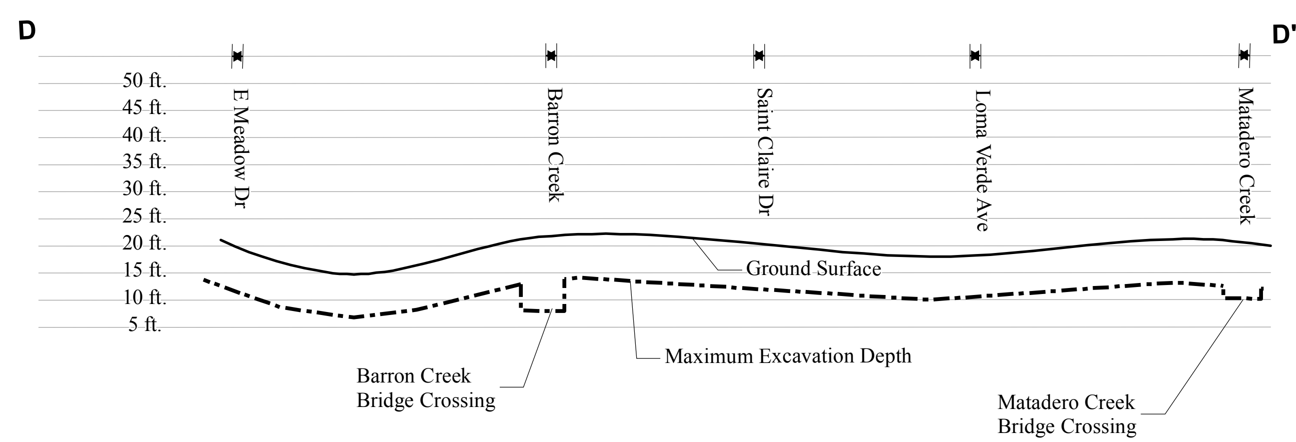
Elevation, Feet (NAD 1988 Datum)

0 750 1,500 Feet

WSA

Archaeological Horizontal and Vertical Area of Potential Effects

Figure 4
Map 3 of 7
RMC
Palo Alto Recycled Water Facility Project
Palo Alto, CA



Vertical Area of Potential Effects (APE)

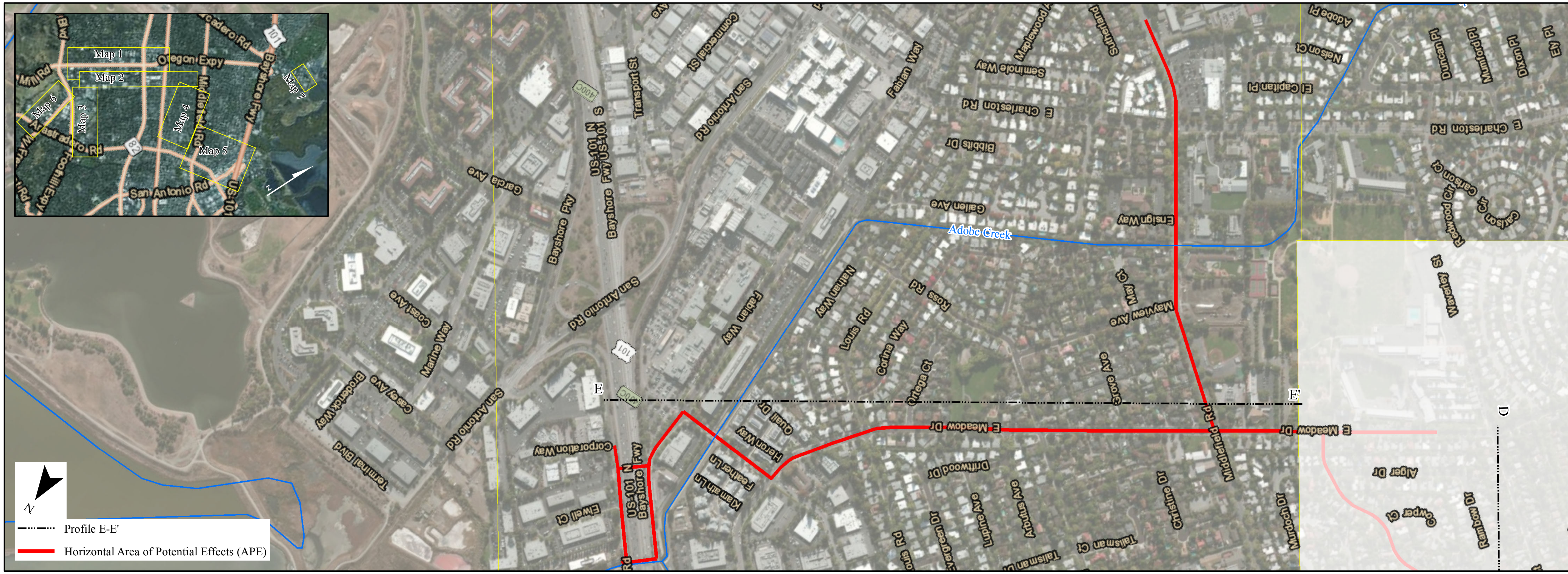
- Ground Surface
- Maximum Excavation Depth
- Elevation, Feet (NAD 1988 Datum)

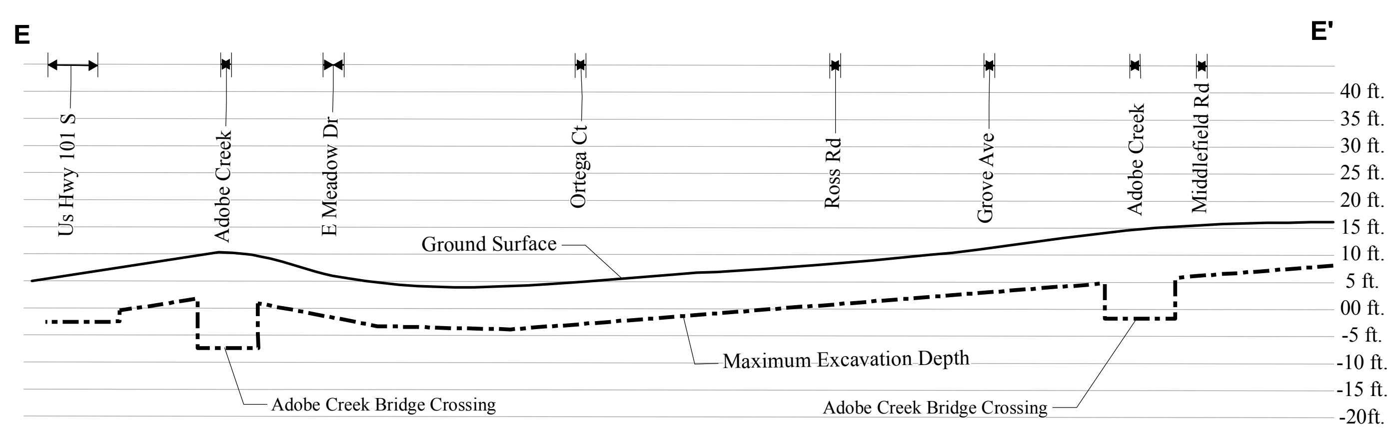
0 750 1,500 Feet

WSA

Archaeological Horizontal and Vertical Area of Potential Effects

Figure 4
Map 4 of 7
RMC
Palo Alto Recycled Water Facility Project
Palo Alto, CA





Vertical Area of Potential Effects (APE)

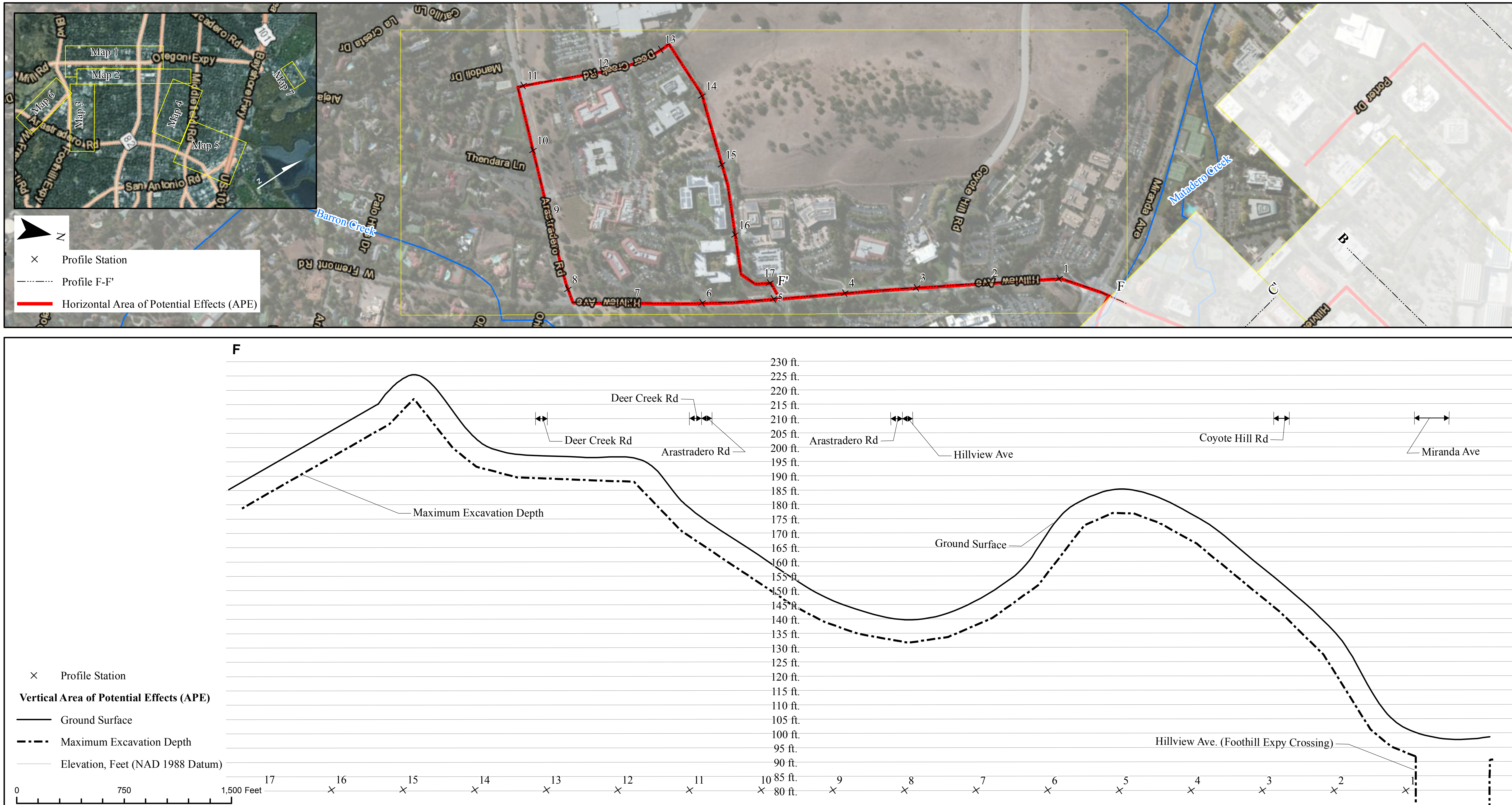
- Ground Surface
- Maximum Excavation Depth
- Elevation, Feet (NAD 1988 Datum)

0 750 1,500 Feet

WSA

Archaeological Horizontal and Vertical Area of Potential Effects

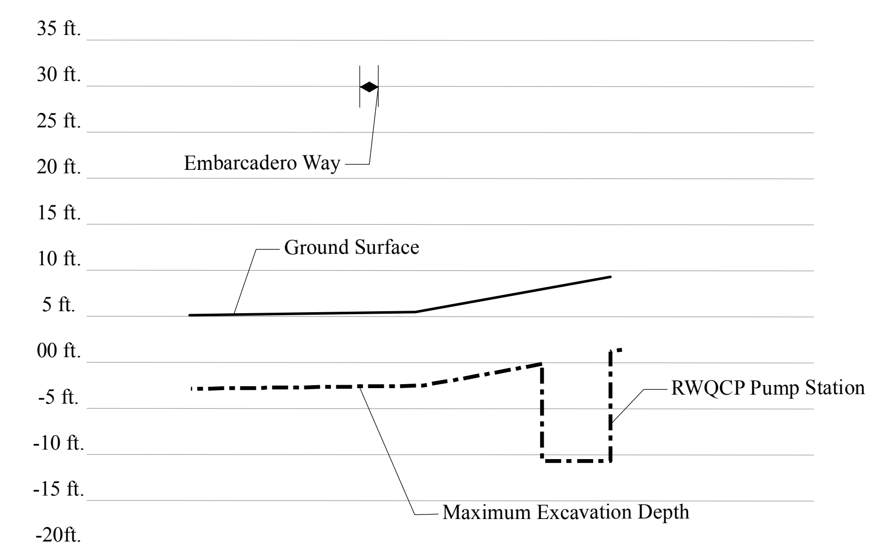
Figure 4
Map 5 of 7
RMC
Palo Alto Recycled Water Facility Project
Palo Alto, CA



WSA

Archaeological Horizontal and Vertical Area of Potential Effects

Figure 4
Map 6 of 7
RMC
Palo Alto Recycled Water Facility Project
Palo Alto, CA



Vertical Area of Potential Effects (APE)

Ground Surface

Maximum Excavation Depth

Elevation, Feet (NAD 1988 Datum)

0 400 800 Feet

WSA

Archaeological Horizontal and Vertical Area of Potential Effects

Figure 4
Map 7 of 7
RMC
Palo Alto Recycled Water Facility Project
Palo Alto, CA

2.2 Archaeological Sensitivity of the Project Area

Archaeological sensitivity modeling is a technique used to predict the potential for finding archaeological sites based on known site locations and assumptions about human behavior (e.g., Dalla Bonna 1994; Ebert and Singer 2004; Kamermans and Wansleeben 1999; Kohler and Parker 1986). The advent of GIS has greatly enhanced the analysis of spatial relationships and increased the power of predictive models of archaeological sensitivity (e.g., Kvamme 1990; Savage 1989; Warren 1990).

Archaeological sensitivity models are primarily inductive, or descriptive, and commonly employ topographic and hydrologic variables such as elevation, slope, aspect, and distance to nearest water. Archaeologists disagree as to the utility of simple versus complex models, the number and nature of variables, and the goal of the models. Most archaeologists prefer a simpler model, which uses three (e.g., Dean 1983:11; Altschul 1990:229-30) to four (e.g., Kvamme 1985; Parker 1985; Carmichael 1990) variables that describe the modern setting of archaeological sites. The present archaeological sensitivity model relies on soil type, slope, and distance to nearest water as the basis for calculating areas of high, medium and low archaeological potential within the project area. Developing the predictive model involved a series of steps, each of which utilized statistical analysis within the ArcGIS 10.2 software package.

The GIS analysis performed in ArcGIS resulted in a predictive surface, or layer of archaeological sensitivity, calculated pixel by pixel combining all three variables. The archaeological sensitivity model depicted in Figure 5 shows the distribution of low, moderate, and high archaeological sensitivity within the project vicinity. The areas of highest sensitivity are in the northern and eastern portions of the project area and are concentrated within well developed alluvial deposits along the major creeks in the area.

The archaeological sensitivity study is based on a soils report prepared for the Project buy David De Vries of Mesa Technical in Berkeley, California, (De Vries 2008). His report is based upon review of the older Santa Clara Area soil survey (Gardner et al. 1958), mapped just before WWII, and more recent geotechnical reports by various authors for specific building sites within the Project APE. Most of what follows is taken from De Vries 2008.

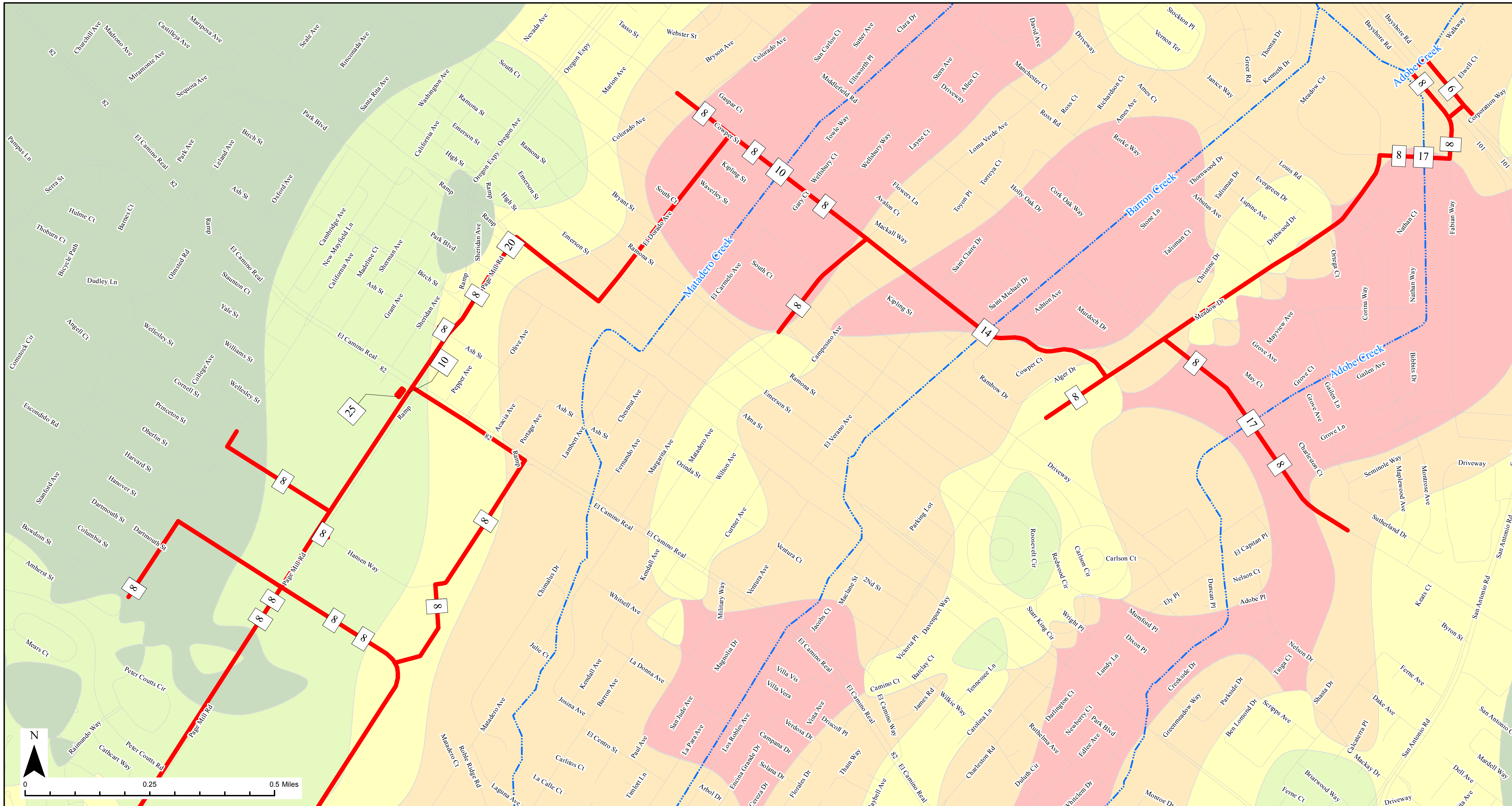
Geographically, the Project APE includes an approximately 2 mile by 4 mile area of southeastern Palo Alto, stretching northeast from the hills just south of Stanford University to the Bayhore Freeway, US-101. Geomorphologically, the Project APE is similar to other urban landscapes ringing the central and south parts of San Francisco Bay, in that rolling foothills give way to broad swaths of older, then younger alluvial fan aprons, cut by recent streams which have eroded the uplands and older fans, then have deposited channel sands and gravel, shifted course, and built terraces, levees, and extensive floodplains along their descent to San Francisco Bay.

<u>Basin Soils</u>

A large part of the APE, 40-50%, has been mapped on low ground near the Bay as one of three types of heavy textured, poorly drained soils, members of the Clear Lake, Sunnyvale, or Alviso series. All are on formerly wet, or seasonally wet grassland that now has been diked, drained, and reclaimed. These soils are less affected by high water tables now, since drainage ditches or tile drains have been installed. Also, pumping for urban use, and formerly for agricultural irrigation, has lowered the local water table.

The Clear Lake soils, 0-1% slopes (Cm), on the upper rim of the basin, are highest in elevation and least affected by salt or lime accumulation. They probably represent former freshwater floodplain deposits. The Clear Lake clay has an A-C horizonation that has developed within deep alluvial deposits. The A-C pattern of Clear Lake soil horizonation, and lack of a B horizon, thus does not reflect frequent episodes of deposition, as on an alluvial fan, but rather the constant top to bottom churning of the soil, making an undifferentiated mass of the top four feet. Blocks and prisms of soil slid against each other with each wetting and drying episode, forming smooth slickenside surfaces and destroying any stratigraphic integrity that subsurface cultural deposits may have once had. The Clear Lake soils are wet for nearly half the year, and thus not good sites for permanent camps, though being adjacent to wetter marshland, they may have been used for temporary hunting or fishing camps during the summer. Their massive structure, extremely hard dry consistence, and very sticky, plastic nature when wet, would have made them unappealing or impossible to dig for storage pits or burials. They are unlikely to have been used for those purposes, with well drained soils of better tilth so close at hand. We would rate the Clear Lake soils as having a low potential to contain buried features associated with sustained, long term occupation.

The Alviso soils, 0-1% slopes (An) occur on the lowest ground nearest the Bay, formerly tidal marsh, and are affected by sodium and other salts throughout their profiles. The Alviso clay occurs on level ground in a lower topographic position than the Clear Lake or Sunnyvale basin soils. The parent material of the Alviso clay is fine textured alluvium, similar to the parent material of the other basin soils in the Project area. However, the source of the Alviso parent material is more likely to have been suspended mud from the Bay than alluvium from the hills above Palo Alto. The Alviso soils do not shrink and swell to the degree that the Clear Lake soils do, so the vertisolic churning of the A horizon is absent. Furthermore, the Alviso clay has a saline water table at 2-3 feet depth, which limits vegetation to salt tolerant grasses and pickleweed, and keeps the entire profile moist or wet at most times. The consistently damp soil conditions and low energy environment of aggradation favor the development of buried A horizons, resulting in A-C-Ab-2C paleosolic profiles. The A-C pattern of Alviso soil horizonation, and lack of a B horizon, reflects frequent episodes of deposition, without sufficient time for eluviation of clay to form a B horizon. The Alviso soils are wet or damp nearly all the time, and thus not good sites for sustained, semi-permanent camps. However, the gentle, low



Archaeological Sensitivity Ranks

- High
- High to Moderate
- Moderate
- Moderate to Low
- Low

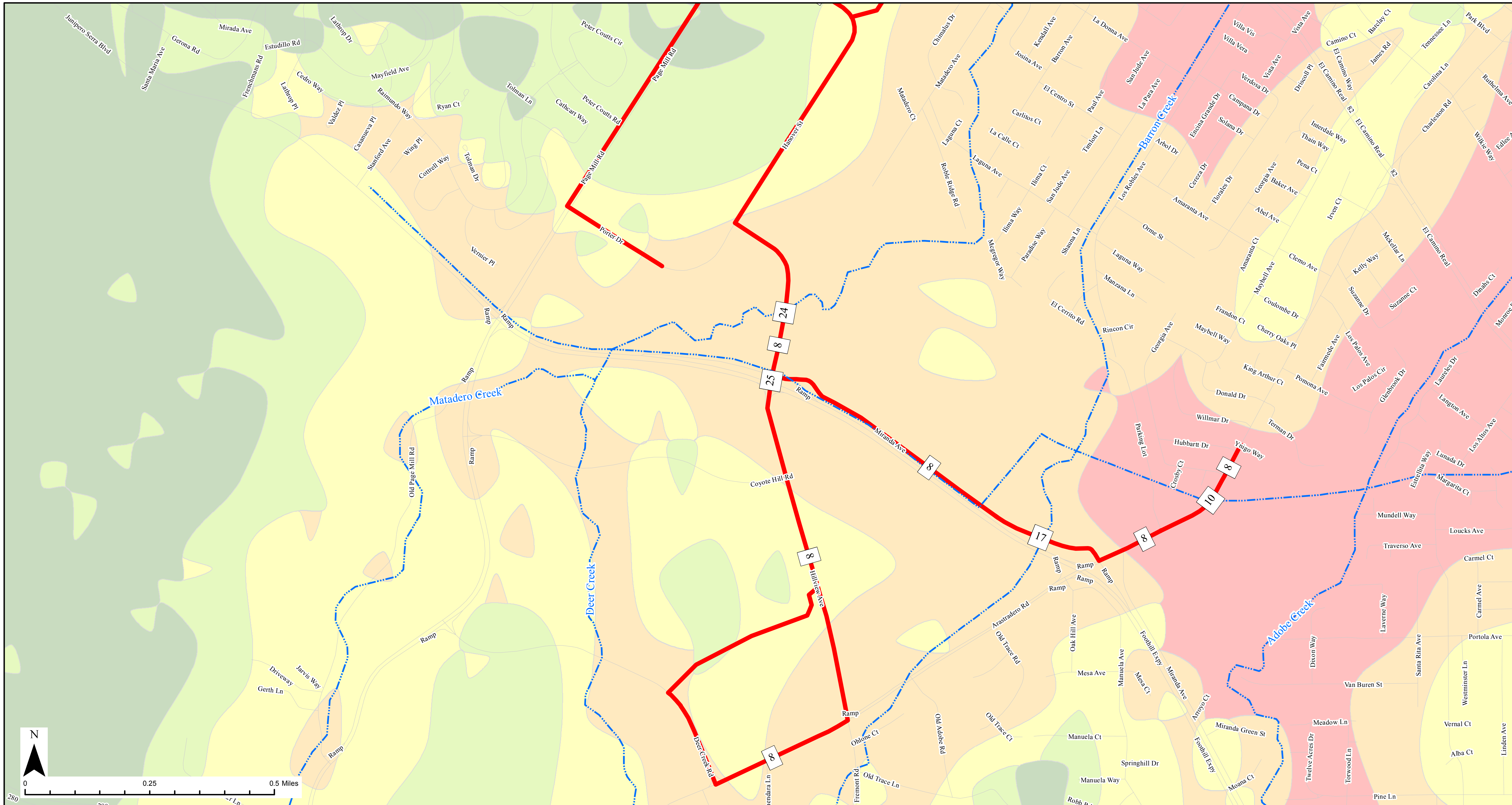
- Street
- Stream
- 8* Horizontal Area of Potential Effects (APE)

*Maximum Excavation Depth (in feets)

WSA

Archaeological Sensitivity Map

Figure 5
Map 1 of 2
RMC
Palo Alto Recycled Water Facility Project
Palo Alto, CA



WSA

Archaeological Sensitivity Ranks

High
High to Moderate
Moderate
Moderate to Low
Low

Street
Stream
8* Horizontal Area of Potential Effects (APE)
*Maximum Excavation Depth (in feets)

Archaeological Sensitivity Map

Figure 5
Map 2 of 2
RMC
Palo Alto Recycled Water Facility Project
Palo Alto, CA

energy environment of sedimentation would be very favorable to the undisturbed burial of whatever artifacts might be present as a result of seasonal use.

The Sunnyvale soils, 0-1% slopes (Sx) are intermediate, having more marly lime than the Clear Lake soils, but not so high sodium levels as the Alviso soils. The Sunnyvale clay is mapped on large areas of level ground in an intermediate topographic position between the Clear Lake soils on the high side, and the Alviso soils on the low side. It is black, calcareous clay. Like the Alviso and Clear Lake soils, the Sunnyvale soil developed from fine textured floodplain alluvium in a low energy depositional environment. However, since the soil is wetter than the Clear Lake, and drier than the Alviso, the Sunnyvale has unique properties: its mixed minerology reduces the seasonal cracking, swelling, churning tendencies of basin rim soils like the Clear Lake, and its drier topographic position than the Alviso makes the Sunnyvale soil relatively rich in lime ($CaCO_3$) but mostly leached free of sodium, the more soluble salt. The intermediate soil wetness regime and heavy texture makes the Sunnyvale a grassland or prairie soil, a mollisol. The high organic matter content near the surface (from the grass roots) and high calcium content throughout tend to flocculate the clay and promote a granular, workable soil tilth, except during summer, for longer periods than on the Clear Lake soils. Gardner reports occasional gravel in some locations, deep in the subsoil or in parent material. This would seem to indicate that the Sunnyvale in places overlays Zamora or Dublin fan deposit soils at depths of only 5-7 feet. Pedologically, the Sunnyvale clay and its underlying sediments have a high potential to contain buried paleosols, reflecting either the gentle depositional environment of the floodplain, or the more energetic environment of the lower alluvial fans. On and within these paleosols, archaeological sites undoubtedly exist, so the archaeological potential is high. However, considering the vast areas mapped to Sunnyvale soil, and the very small percentage of this area to be disturbed within the APE, the chances of actually encountering a site are low.

The Alviso and Sunnyvale soils are mapped on large areas of bayside flood plain, characterized by late Holocene alluvium deposited in a gentle, low energy, aggradational environment. Such a sedimentation regime is ideal for the intact burial of archaeological features, despite the fact that the obdurate soil texture and poor drainage make the presence of such archaeological features unlikely within the greatest part of the land so mapped. However, invisible to us today, either because of historic agricultural land leveling, and subsequent urban usage, or because of being covered with a thin veneer of recent flood sediment, there are bound to be small areas of buried landforms such as former stream levees or low dunes, on land near the present or former Bay shore. These areas have a high archaeological potential to contain shell midden deposits, because of offering dry soil within a fish and game rich marsh, sometimes with permanent fresh water nearby. So it is appropriate to say that most areas of the Alviso and Sunnyvale soils have low potential, except for small areas near former creek channels, and near former dunes. Such areas could be very shallowly buried, and unmapped on soil surveys, as they are covered by a thin layer of fine textured recent sediment that is undistinguishable from the Sunnyvale or Alviso surfaces.

Scattered geotechnical data exist for that part of the APE located on basin soils, showing gravel deposits at depth, usually below 16 feet (Berlogar Geotechnical Consultants 2006; Berlogar, Long & Associates 1981; Jones 1980; and Lowney & Associates 1988) The data are indicative of mid Holocene or earlier fan deposits, from a time when water levels in the Bay were much lower, and the fans originating in the uplands to the southwest extended farther to the northeast. The archaeological potential of these deposits would be lower than for more recent fan deposits because the food-rich Bay would have been at a greater distance, and thus it would have been less likely that the land was occupied on a sustained basis. Conversely, there are probably deeply buried shell middens along former Bay shore, below tidal mudflats, well out from this project's APE, on land now flooded.

Recent Fan and Floodplain Soils

Approximately 30% of the APE surface soil has been mapped as Dublin clay, Dublin clay loam, or Zamora clay loam. These soils developed on recent alluvial fan material, near the distal edges of their fans, from sandstone and shale sediments. The degree of profile development is low. These soils have Bt horizons, but only barely, probably indicating an age not greater than mid-Holocene. Their relatively fine texture indicates a low energy depositional environment, thus favoring the undisturbed burial of any cultural features that happen to be present. Their geographic position adjacent to the Clear Lake basin soils, and the shapes of some map units, is suggestive of interfingering sediment deposits, with non-vertisolic Dublin and Zamora soils developing in one place (favoring preservation of cultural features), and churning, vertisolic Clear Lake soils developing at the surface nearby (favoring destruction of any archaeological record). These radical differences in soil behavior exist because of differing minerology and shrink-swell potential in the parent material. The Dublin soils are associated with small watersheds and intermittent streams, whereas the Zamora soils are associated with the larger watersheds and higher energy streams such as Stevens Creek, San Francisquito Creek, and Permanente Creek.

The Dublin series (Dublin clay, 1-3% slopes [Dh]; 3-6% slopes, [Dg] and Dublin clay loam, 1-3% slopes [Dl]) is mapped on gently sloping ground in an intermediate topographic position between the Clear Lake soils on the low side, and the Milpitas and Ohmer soils on terraces to the southwest. The Dublin is a black, noncalcareous, heavy textured soil of fans and floodplains associated with small watersheds, the rounded grassy foothills of the urban fringe, rather than the mountainous uplands. The surface horizons crack upon drying, and thus would be likely to destroy stratigraphic relationships of artifacts formerly at the ground surface. The Dublin soils are considered to have a high probability of having buried paleosols, because of a high organic matter content and a rapidly aggrading geomorphological position, but the potential for deeply buried sites is low, because of the rare or intermittent water supply in these small watersheds. For areas of the Dublin soils adjacent to Zamora soils, the potential for deeply buried sites would be greater, of moderate probability, because Zamora landforms are more likely to be near a permanent stream.

The Zamora series (Zamora gravelly clay loam, 1-3% slopes [Ze]; Zamora silty clay loam, 1-3% slopes [Zf]; Zamora clay loam, 0-6% slopes [Za]), like the Dublin, is mapped on gently sloping recent fans and floodplains. Zamora soils are old enough to show slight illuviation of clay in the B horizons, but not so old as to pre-date the possibility of human cultural usage. They are probably younger than mid-Holocene in age. The Zamora parent sediments were transported to their fan, floodplain, and low terrace positions by the area's larger streams, draining watersheds in the Santa Cruz Mountains. Indeed, the prevalent fan soils mapped by Gardner are combinations of Zamora (A-Bt-C), Yolo (A-C), and Sorrento (A-Ck) soil types, reflecting typical patterns of fan building, as the runoff wanders over the fan surface, and areas presently covered by gravelly or sandy deposits are then buried by finer material, silty clay loam and clay, as the channel shifts away. Over time, Bt horizonation develops on the less frequently flooded sediments. Zamora soils can present a very complicated three-dimensional volume, a vertical APE that may show several buried surfaces, or none, depending upon the frequency and violence of the fan building storm events. Zamora soils are moderately well drained, and would most of the time have a drier surface than the adjacent (to the northeast) Clear Lake clay. The archaeological sensitivity of the Zamora soils is high, especially near Barron Creek and Matadero Creek, where the Zamora presence on both sides of the waterway indicates both a stable channel and long term stable land surfaces.

Upland soils

Small areas of upland soils are mapped within the APE, in the Vallecitos, Gaviota, and Los Trancos series: Vallecitos clay loam, 20-35% slopes (Va); Gaviota loam, 20-35% slopes (Gk); Los Trancos stony clay, 10-35% slopes (Lg). These are shallow, residual soils developed on bedrock. The Vallecitos soil has an A-Bt-R horizonation, with hard, partially metamorphosed sedimentary rock at about 19" depth. The textural B horizon has developed directly from the weathering of the parent material, rather than from eluviation of clay from A to B horizons. The Gaviota loam has an A-R horizonation, with hard sandstone at 15-25 inch depth. The Los Trancos soil developed from basic igneous rock, and is only 3-10 inch deep. As with the Vallecitos soil, the fine texture results from the chemical weathering of the parent material into montmorillonitic clay minerals, rather than from long term, stable landscape processes such as gradual translocation of clay from A to B horizon. The upland soils are on hillsides, with areas of rock outcrops. Erosion is a constant factor in keeping these soils shallow, and genetically young. The archaeological potential for deeply buried sites is low; artifacts are more likely to be at the surface, perhaps chronologically mixed and concentrated, as the matrix of fine soil material washes downslope, leaving a residuum of relatively heavy cultural materials in place. We have also found on similar soils that bioturbation has thoroughly churned the cultural artifacts, if present, and there are likely to be isolated artifacts now resting directly on bedrock, that were once at the surface.

Terrace soil

Surrounding the upland soils in the southern and western parts of the APE are well-developed stream terrace soils of the Ohmer and Milpitas series. Soils of stream terraces would seem to have a high potential for harboring buried archaeological sites, because recent (first terrace) soils are often flat, dry, easy to dig, and very near to the water of their parent stream. And unlike alluvial fans and floodplains, they do not occupy broad swaths of the landscape, so the high cultural potential is concentrated within a relatively small area. Yet not all terrace soils have a high archaeological potential, for reasons of age, drainage, or the presence of superior locations nearby. The Milpitas and Ohmer soils are moderately old, and both have impaired drainage because of claypan subsoils. The Milpitas soil especially has poor drainage, and is often saturated after winter rains.

The Milpitas soils (Milpitas loam, 3-10% slopes [Mg]) have an easily worked loamy surface horizon overlying, quite abruptly, a clay Bt horizon of more reddish color. This Bt horizon overlies sandy or gravelly alluvium, in some places partially consolidated, that is, becoming cemented with silica or iron in solution. The clay subsoil is a well developed Bt horizon, its sharp upper boundary, thickness, color, and substantially higher clay content (as compared to the A horizon) indicating a long period of landscape stability and soil development. The Ohmer soils (Ohmer clay loam, 3-10% slopes [Oa]; Ohmer clay loam, 10-20% slopes [Oc]) are slightly less pronounced in their degree of development. Ohmer soils are darker in color at the surface, with a slightly less compact Bt subsoil. These soils are probably older than mid-Holocene, but the Milpitas soils appear to be older than the Ohmer soils, perhaps of early Holocene age. Despite their ideal geomorphic position, we would estimate the potential for deeply buried archaeological sites to be low in the Milpitas soil areas, because of their age. Since the Ohmer soils are less well developed, thus younger, we would estimate a higher probability of a Holocene paleosol buried beneath today's profile, and thus assign a moderate archaeological potential to the Ohmer soils.

Older Fan soils

Large areas of older fan soils lie exposed along the northeast foot of the uplands at the western edge of the Santa Clara Valley, where they have not been buried by recent fan sediments now mapped as Yolo, Zamora, and Dublin soils. Small areas of the Pleasanton and San Ysidro series are mapped within the project APE. Older fan soils, just as the older terrace soils described above, have well developed B horizons resulting from long periods of landscape stability.

The Pleasanton soils (Pleasanton gravelly loam, 1-3% slopes [Po]; Pleasanton loam, 1-3% slopes [Ps]; Pleasanton loam, 3-10% slopes [Pr]) are characterized by a thick A horizon, a loam to clay loam increase in texture from A to the rather deep Bt horizon, a slight reddening of color from A to Bt, and a "clear" boundary along the upper Bt transition, rather than an "abrupt" horizon boundary. These properties indicate moderate soil development, as opposed to strong or extreme development. The Pleasanton soils probably have a younger than mid-Holocene history. Their archaeological potential would be moderate on the west, where they border the Zamora and Dublin soils, but high in the east part of the APE, where they border San Antonio Creek. The San Ysidro soils (San Ysidro loam, 1-2% slopes [Sb]) have a strongly developed profile: a loam A horizon makes an "abrupt" transition to a clay Bt with columnar structure, bleached column tops, and continuous clay films bridging pores and coating peds. The C horizon is strongly calcareous; some of this lime is segregated. On a fan surface, these properties would indicate an older, very stable landscape history, probably early Holocene. On a valley floor, the strong profile development may indicate not only old age, but also a long term regime of winter ponding and long periods of wetness after every rain. The archaeological potential of these soils is low, not only because of their age, but also because of the clayey, very firm, sticky, and very plastic properties of the subsoil, which would make habitation or use difficult and unpleasant for much of the year. Better, drier soils of the Ohmer and Milpitas series are close by, and would be preferentially favored.

Areas of Archaeological Sensitivity

Based on the criteria of soil type, slope, and distance to nearest water present the archaeological sensitivity model for the project has identified areas of high, medium and low archaeological potential within the project area (Refer to Figure 5). Project components are located in five areas of high archaeological sensitivity and two areas of high to moderate archaeological sensitivity. Six of these areas are in the vicinity of the creek crossings and the seventh lies in an area between creeks.

- The Adobe Creek crossing on East Meadow Drive is located in an area of high archaeological sensitivity
- The Adobe Creek crossing along Middlefield Road is located in an area of high archaeological sensitivity
- The Barron Creek crossing along Cowper Street is located in an area of high archaeological sensitivity
- The Matadero Creek crossing along Cowper Street is located in an area of high archaeological sensitivity

- The lateral line along Arastadero Road northeast from the intersection with Miranda Avenue is located in an area of high archaeological sensitivity
- The Matadero Creek crossing along Hillview Avenue is located in an area of high to moderate archaeological sensitivity
- The Barron Creek crossing along Miranda Avenue is located in an area of high to moderate archaeological sensitivity

2.3 Cultural Setting

<u>Prehistoric Archaeological Background</u>

Research into local prehistoric cultures began when Nels C. Nelson of the University of California, Berkeley, conducted the first intensive archaeological surveys of the San Francisco Bay region from 1906 to 1908. Nelson documented hundreds of shellmounds along the shoreline of the San Francisco Bay, when much of the area was still ringed by salt marshes (Nelson 1909:322ff.). He maintained that the intensive use of shellfish – a subsistence strategy reflected in both coastal and bayshore middens – indicated a general economic unity in the region during prehistoric times, and he introduced the idea of a distinctive San Francisco Bay archaeological region (Moratto 1984:227).

In 1911, Nelson supervised excavations at CA-SFR-7 (the Crocker Mound) near Hunter's Point in San Francisco County, a site later dated from 1050 B.C. to A.D. 450. L. L. Loud identified archaeological components from this same period in Santa Clara County in 1911 while excavating at CA-SCL-1 (the Ponce, Mayfield, or Castro Mound site). R. J. Drake recognized them in San Mateo County in 1941–42 at CA-SMA-23 (Mills Estate) in San Bruno (Moratto 1984:233).

The work of Nelson and Loud in the Bay Area provided the impetus for investigation into the prehistory of central California, which began in earnest in the 1920s. Stockton-area amateur archaeologists J. A. Barr and E. J. Dawson excavated a number of sites and made substantial collections in the area from 1893 through the 1930s. On the basis of artifact comparisons, Barr identified what he believed were two distinct cultural traditions. Dawson later refined his work into a series of Early, Middle, and Late sites (Ragir 1972; Schenck and Dawson 1929).

Professional or academic-sponsored archaeological investigations began in the 1930s when J. Lillard and W. Purves of Sacramento Junior College formed a field school, conducting excavations throughout the Sacramento Delta area. By seriating artifacts and mortuary traditions, they identified a three-phase sequence similar to Barr's and Dawson's, including Early, Intermediate, and Recent cultures (Lillard and Purves 1936). This scheme went through several permutations, including Early, Transitional, and Late Periods (Lillard et al. 1939) and Early, Middle, and Late Horizons (Heizer and Fenenga 1939). In 1948 and again in 1954, Richard

Beardsley refined this system and extended it to include the region of San Francisco Bay. The result is referred to as the Central California Taxonomic System (CCTS) (Beardsley 1948, 1954; Moratto 1984). Subsequently the CCTS system of Early, Middle, and Late Horizons was applied widely to site dating and taxonomy throughout central California.

Inevitably, as more data were acquired through continued fieldwork, local exceptions to the CCTS were discovered. Coupled with the accumulation of these exceptions, the development of radiocarbon dating, introduced in the 1950s, and of obsidian hydration in the 1970s, opened up the possibility of dating deposits more accurately. Much of the subsequent archaeological investigation in central California focused on the creation and refinement of local versions of the CCTS.

The difficulties of creating a broadly applicable culture history are fully discussed by Bennyhoff and Fredrickson in Hughes (1994). Given the expanse of central California as well as the complex nature of cultural change over space and time, this single system is limited to providing a general framework for assigning newly found materials to existing culture chronologies. Nonetheless, a modification of the CCTS (Bennyhoff and Hughes 1987; Milliken and Bennyhoff 1993) that presents an Early, Middle, and Late Period with associated transitional periods and subperiod phases remains a useful way to assign dates or cultural periods, or both, to newly discovered features or assemblages. Complementary techniques such as obsidian hydration or radiometric measurements further increase the accuracy of these assignments.

Of some relevance for the current project is a chronological scheme developed by Bennyhoff and Hughes (1987:149). In brief and general form, this scheme includes the following periods and chronology:

- Early Period, ca. 6000–500 B.C.
- Early/Middle Period Transition, ca. 500–200 B.C.
- Middle Period, ca. 200 B.C.–A.D. 700
- Middle/Late Period Transition, ca. A.D. 700–900
- Late Period, ca. A.D. 900–1750

These periods of the CCTS are associated with patterns such as the Windmiller, Berkeley, and Augustine patterns. A pattern is

> [an] adaptive mode(s) extending across one or more regions, characterized by particular technological skills and devices, particular economic modes, including participation in trade networks and practices surrounding wealth, and by particular mortuary and ceremonial practices. (Fredrickson 1973:7–8)

The Windmiller Pattern sites are most often found in the Early Period (ca. 6000–500 B.C.), but they are known to extend into the Middle Period, possibly as late as A.D. 500 in certain areas (Moratto 1984:210). Windmiller Pattern sites are often situated in riverine, marshland, or valley floor settings, as well as atop small knolls above prehistoric seasonal floodplains, locations that provided a wide variety of plant and animal resources. Most Windmiller Pattern sites have burials with remains that are extended ventrally, oriented to the west, and that contain copious amounts of mortuary artifacts. These artifacts often include large projectile points and a variety of fishing gear such as net weights, bone hooks, and spear points. The faunal remains indicate that the inhabitants hunted a range of both large and small mammals. Stone mortars and grindstones for seed and nut processing are common finds. Other artifacts—such as charmstones, ocher, quartz crystals, and *Olivella* shell beads and *Haliotis* shell ornaments—suggest the practice of ceremonialism and trade.

Some scholars have suggested that Windmiller Pattern sites are associated with an influx of people from outside California who introduced subsistence strategies adapted for a riverine-wetlands environment (Moratto 1984:207). Windmiller assemblages have been found to overlap in time with those of the Berkeley Pattern (Moratto 1984).

The Berkeley Pattern has been found from at least 3000 B.C. in the east San Francisco Bay (e.g., Alameda District) (Bennyhoff 1982; Hughes 1994), with the number of sites increasing through A.D. 1 (Moratto 1984:282). The people characterized by the Berkeley Pattern expanded eastward to the Central Valley after about 500 B.C. Berkeley Pattern sites are much more common and well documented, and therefore better understood, than Windmiller Pattern sites. Berkeley sites are scattered in more diverse environmental settings, but riverine settings are prevalent.

Deeply stratified midden deposits that developed over generations of occupation are common to Berkeley Pattern sites. These middens contain numerous milling and grinding stones for food preparation. The typical body position for burials is tightly flexed, with no particular preference for orientation. Associated grave goods are much less frequent than with either the Windmiller or the Augustine pattern. Projectile points in this pattern are larger in earlier times but become progressively smaller and lighter over time, culminating in the introduction of the bow and arrow during the Late Period. Wiberg (1997:10) claims that large obsidian lanceolate projectile points or blades are unique to the Berkeley Pattern. *Olivella* shell beads include Saddle (F) and Saucer (G) types. *Haliotis* pendants and ornaments are occasionally found. Slate pendants, steatite beads, stone tubes, and ear ornaments are unique to Berkeley Pattern sites (Fredrickson 1973:125–126; Moratto 1984:278–279). As with the Windmiller Pattern sites, evidence of warfare or interpersonal violence is present, including cranial trauma, parry fractures, and embedded projectile points.

The Augustine Pattern coincides with the Late Period, ranging from as early as A.D. 700 to about A.D. 1750 and is typified by intensive fishing, hunting, and gathering (especially of acorns), a large population increase, expanded trade and exchange networks, increased ceremonialism, and the practice of cremation in addition to flexed burials. Certain artifacts are also distinctive in this pattern: bone awls used in basketry, small notched and serrated projectile points that are indicative of bow-and-arrow usage, occasional pottery, clay effigies, bone whistles, and stone pipes. *Olivella* bead and *Haliotis* ornaments increase in number of types and frequency of occurrence, sometimes numbering in the hundreds in single burials. Beginning in the latter half of the 18th century, the Augustine Pattern was disrupted by the Spanish explorers and the mission system (Moratto 1984:283).

The establishment of a chronology allows archaeologists to explore other kinds of evidence and research questions that focus on cultural responses to environmental change, settlement and subsistence strategies, trade and exchange routes, population movement, and related topics. Shifting focus from typology to adaptation in the 1970s, Fredrickson identified widespread cultural patterns on the basis of technology (artifacts and inferred skills), economic modes (inferred from processing equipment and food remains), and cultural tradition (e.g., mortuary practices) (Breschini 1983; Fredrickson 1973). Fredrickson identified Paleoindian, Archaic, and Emergent periods inspired by original work by Willey and Phillips (1958). Table 4 summarizes the taxonomic framework developed by Fredrickson (in Hughes 1994).

This scheme places subsistence, organization, and exchange patterns and strategies within a chronological framework. Projectile point types, shell bead and ornament types, and other specific artifact types can be associated with a period by virtue of the dates that may be assigned to them, but this scheme is not defined on the basis of specific types of objects, as is the scheme associated with Bennyhoff, the CCTS.

Table 4. Summary of the taxonomic framework developed by Fredrickson (1973, and in Hughes 1994).

Period and Time Range	Technology, Subsistence	Exchange	Organization
Paleoindian 8000–6000 B.C. Wet and cool; lakeside habitation	Foraging: large projectile points imply hunting with dart and atlatl; groups change habitat to find resources	Ad hoc between individuals	Extended family; little emphasis on wealth
Lower Archaic 6000–3000 B.C. Drying of pluvial lakes, habitations move to rivers, streams	Foraging: milling stones indicate plant food; dart and atlatl imply hunting also important; use of local materials	Ad hoc between individuals	Extended family; little emphasis on wealth
Middle Archaic 3000–500 B.C. Climatic amelioration; local specializations of marine, upland, riverine environments	Foraging: mortars and pestles imply acorn economy; dart and atlatl persist; hunting remains important; tool kits diversify	If changes occur, do not see in archaeological record	Extended family, sedentism begins; growth of population and expansion into diverse niches

Period and Time Range	Technology, Subsistence	Exchange	Organization
Upper Archaic 500 B.C.–A.D. 800 Cooler climate	Foraging, but also some collecting; mortars, pestles; dart and atlatl	More complex: regular exchange between groups; ad hoc continues	Sociopolitical complexity; status distinctions imply wealth; group-oriented religious orgs.; no firm territories
Lower Emergent A.D. 800–1500	Collecting dominates, some foraging; small projectile points imply use of bow and arrow; mortars and pestles persist	Regularized exchanges between groups; more materials in network; ad hoc continues	Status distinctions more pronounced; established territories
Upper Emergent A.D. 1500–1800	Collecting dominates, some foraging; bow and arrow; mortars, pestles; local specialization re: production;	Clam disk beads imply money; local specialization; exchange materials move farther distances; ad hoc continues	

<u>Ethnographic Background</u>

This section provides a brief summary of the ethnography of the San Francisco Bay Area and is intended to provide a general background only. More extensive reviews of Ohlone ethnography are presented in Bocek (1986), Cambra et al. (1996), Kroeber (1925), Levy (1978), Milliken (1995), and Shoup et al. (1995).

The Project area lies within the region occupied by the Ohlone or Costanoan group of Native Americans at the time of historic contact with Europeans (Kroeber 1925:462-473). Although the term Costanoan is derived from the Spanish word costaños, or “coast people,” its application as a means of identifying this population is based in linguistics. The Costanoans spoke a language now considered one of the major subdivisions of the Miwok-Costanoan, which belonged to the Utian family within the Penutian language stock (Shipley 1978:82 84). Costanoan designates a family of eight languages.

Costanoan-speaking tribal groups occupied the area from the Pacific Coast to the Diablo Range and from San Francisco to Point Sur. Modern descendants of the Costanoan prefer to be known as Ohlone. The name Ohlone is derived from the Oljon group, which occupied the San Gregorio watershed in San Mateo County (Bocek 1986:8). The two terms (Costanoan and Ohlone) are used interchangeably in much of the ethnographic literature.

On the basis of linguistic evidence, it has been suggested that the ancestors of the Ohlone arrived in the San Francisco Bay area about A.D. 500, having moved south and west from the

Sacramento-San Joaquin Delta. The ancestral Ohlone displaced speakers of a Hokan language and were probably the producers of the artifact assemblages that constitute the Augustine Pattern described below (Levy 1978:486). On the basis of archaeological evidence, Milliken et al. (2007:99) dates the arrival of the Ohlone earlier, to about 2550 B.C. This three thousand year difference in interpretations remains to be resolved.

Although linguistically linked as a family, the eight Costanoan languages comprised a continuum in which neighboring groups could probably understand each other. However, beyond neighborhood boundaries, each group's language was reportedly unrecognizable to the other. Each of the eight language groups was subdivided into smaller village complexes or tribal groups. The groups were independent political entities, each occupying specific territories defined by physiographic features. Each group controlled access to the natural resources of their territories, which also included one or more permanent villages and numerous smaller campsites used as needed during a seasonal round of resource exploitation.

According to Milliken (1995), the tribal group that occupied the northern San Francisco Peninsula at the time of historic contact was known as the Yelamu. In March 1776, the Anza party entered Yelamu territory. At that time approximately 160 Yelamu people inhabited the area (Milliken 1995:53). Milliken (1995:260) states that the villages of Chutchui and Sitlintac near Mission Creek were likely used by one band of Yelamu people at different times of the year. Similarly, the villages of Amuctac and Tubsinte in the Visitation Valley area of San Francisco are also thought to have been inhabited seasonally by another Yelamu band. A third small band is thought to have resided in the village of Petlenuc, possibly located near the Presidio.

The vestiges of many village sites within the San Francisco Bay Area have been found in numerous locations around the Bay shoreline in the form of shell mounds—large accumulations of shell, ash, artifacts, and occasionally human remains. With the influx of European settlers in the mid-19th century, most of these sites were destroyed or buried (Alvarez 1992:4-22).

Extended families lived in domed structures thatched with tule, grass, wild alfalfa, or ferns (Levy 1978:492). Semisubterranean sweathouses were built into pits excavated in stream banks and covered with a structure against the bank. The tule raft, propelled by double-bladed paddles, was used to navigate across San Francisco Bay (Kroeber 1925:468).

Mussels were an important staple in the Ohlone diet, as were acorns of the coast live oak, valley oak, tanbark oak and California black oak. Seeds and berries, roots and grasses, and the meat of deer, elk, grizzly, rabbit, and squirrel formed the Ohlone diet. Careful management of the land through controlled burning served to ensure a plentiful, reliable source of all these foods (Levy 1978:491).

In the more recent prehistoric times through European contact and the early historic period, the Ohlone usually cremated a corpse immediately upon death, but if there were no relatives to gather wood for the funeral pyre, interment occurred. Mortuary goods comprised most of the personal belongings of the deceased (Levy 1978:490).

The arrival of the Spanish in 1775 led to a rapid and major reduction in native California populations. Diseases, declining birth rates, and the effects of the mission system served to disrupt aboriginal life ways (which are currently experiencing resurgence among Ohlone descendants). Brought into the missions (the Yelamu inhabitants joined Mission San Francisco from 1777 to 1787 [Milliken, 1995:260]), the surviving Ohlone, along with the Esselen, Yokuts, and Miwok, were transformed from freely moving hunters and gatherers, into agricultural laborers tethered to the mission locale (Levy, 1978; Shoup et al. 1995). With Mexican independence in 1821 and the subsequent abandonment of the mission system, numerous ranchos were established. Many former mission Indians disbursed, and those who remained were then forced by necessity to work on the ranchos.

In the 1990s, some Ohlone groups (e.g., the Muwekma, Amah, and Esselen further south) submitted petitions for federal recognition (Esselen Nation 2007; Muwekma Ohlone Tribe 2007). Many Ohlone are active in preserving and reviving elements of their traditional culture and actively consult on archaeological investigations.

Historical Background

Spanish Exploration and Colonization

The 1769 expedition led by Captain Gaspar de Portolá initiated contact between Spanish explorers and the native people of the Bay region. The Portolá party set off from San Diego and from Monterey onward followed the coast route north, spending late October and early November on the San Francisco Peninsula. After having traveled north up the Peninsula along the coast, where they were greeted warmly by a succession of native villages (Milliken 1995:31-34), the party crossed the Coast Range ridge and began their journey south along the eastern portion of the Peninsula. The party camped on San Francisquito Creek on November 10. Father Juan Crespí, who recorded the details of the expedition, wrote:

At once upon our reaching here, several very well-behaved heathens, most of them well-bearded, came to the camp, giving us to understand that they were from three different villages, and I do not doubt there must be many of these, from the many smokes seen in different directions (Crespí in Stanger and Brown 1969:105 as cited in Shoup et al. 1995:22).

After a mission and settlement had been established at Monterey, parties began exploring north from a new base of operations. The first to return to the Bay Area in 1770 was Pedro Fages and his party, who chose the inland route instead of the coastal route to the north. Fages and his men explored the eastern shore of San Francisco Bay, passing through the Fremont Plain and eventually reaching the location of modern-day north Oakland. Just south of Alameda Creek, in Fages' only mention of native people in his diary of the exploration, the party encountered a group of local native people.

Up close to the lake we saw many friendly good-humored heathens, to whom we made a present of some strings of beads, and they responded with feathers and geese stuffed with grass, which they avail themselves of to take countless numbers of these birds (Fages [1770] 1939:119 as cited in Milliken 1995:36).

In 1772, a second Fages expedition traveled from Monterey passing through the Santa Clara Valley (Levy 1978:398). After passing northward through the region in March, they explored the inland Diablo Valley as far north as the Carquinez Strait and returned south through the Santa Clara Valley in early April.

Fernando Javier Rivera y Moncada and Father Francisco Palou next explored the region in the fall of 1774 (Beck and Haase 1988:17). They, too, followed the inland route and instead of exploring the east side of the Bay, continued north up the San Francisco Peninsula in search of suitable sites for future missions and military installations. The party distributed gifts to native groups along the length of their route.

The final sites for a military base and the first of the Bay Area missions were chosen during the Anza expedition of 1776. Anza and his men traveled up the Peninsula, where a wounded Indian they encountered in modern-day Belmont made them understand that local tribes were in the midst of a conflict. The party explored the entire area that would become San Francisco and continued on to explore portions of the East Bay. At Alameda Creek they came upon thirty Indian men "speaking a language unlike any they had yet heard" (Milliken 1995:54).

The first mission in the San Francisco Bay Area was established in San Francisco with the completion of Mission San Francisco de Asis (Mission Dolores) in 1776. Mission Santa Clara de Asis, located forty miles south of San Francisco, was established just a year later. Mission San Jose, located in modern Fremont, would not be established for another twenty years. Mission lands were used primarily for the cultivation of wheat, corn, peas, beans, hemp, flax, and linseed, and for grazing cattle, horses, sheep, pigs, goats, and mules. In addition, mission lands were used for growing garden vegetables and orchard trees such as peaches, apricots, apples, pears, and figs.

The missions relied on the Native American population both as their source of Christian converts and their primary source of labor. Though some Indians gave up their traditional way of life by choice, many were coerced, manipulated, and forced into the missions. Soldiers stationed at the Presidio were called upon to both punish those Indian people the priests could not control through more diplomatic means, as well as to retrieve people who attempted to return to their native villages. By the mid 1790s, traditional Costanoan lifeways had been significantly disrupted, and diseases introduced by the early expeditions and missionaries, and the contagions associated with the forced communal life at the missions, resulted in the death of a large number of local peoples. Cook (1943) estimates that by 1832, the Costanoan population had been reduced from a high of over 10,000 in 1770 to less than 2,000.

Mexican Rule and Secularization of the Mission System

Following Mexican independence from Spain in 1821, control of Spain's North American colonial outposts was ceded to the Republic of Mexico. Alta California became a province of the new republic and under Mexican rule Californians could now trade with foreigners and, further, foreigners could own property once they had been naturalized and converted to Catholicism. These new regulations made California more attractive to permanent settlers and, not surprisingly, the numbers of Mexican and non-Mexican born immigrants continued to increase during this period.

Despite this, life remained difficult for Indian people within the mission system. Locally, tensions mounted in the summer of 1829 when Indians of the San Jose and Santa Clara missions rebelled under the leadership of an Indian chieftain, Estanislao, and his companion, Cipriano (Shoup et al 1995:83). The confrontations that took place that summer resulted in casualties for both the Indian rebels and the soldiers serving the mission (Shoup et al. 1995:86). The fact that Indian people who had maintained long-term relationships with local missions were motivated to rebel against them reflected poorly on the institution's ultimate success. Difficulties like these on the local level, as well as the larger issues of administering such a widespread institution, and the desire of the Mexican government to remove the missions' vast land holdings from the control of Franciscan priests, resulted in the secularization of the mission system.

The process of secularization began in California in 1834. Very few Indian people received land as a result of secularization. In the end, former mission lands were parceled out in large land grants, and just as they had done in the missions, Native Americans served as a source of labor for the new landowners. Fifty-eight percent of land grants were made to Mexican citizens, while forty-two percent were made to non-Mexicans who had become naturalized and baptized, gaining access to property in the process (Beck and Haase 1988:24). Prior to secularization, 51 grants had been made in Alta California. "Of the 813 grants ultimately claimed, 453 were filed between 1841 and 1846, 277 from 1844 to 1846, and 87 in the last few months before United States occupation" (Beck and Haase 1988:24).

Throughout the state this meant that the agricultural economy that was once limited to the missions and pueblos quickly encompassed a growing number of cattle ranches run by men interested primarily in the hide and tallow trade. The current project area was situated entirely within the 8,418-acre area of Rancho Rincon de San Francisquito (Beck and Haase 1988:30). In 1841, California Governor Alvarado granted the rancho to Jose Pena, who had been a resident of the area since 1824 (Kyle 1990:406-407).

The Mexican-American War and the Gold Rush Lead to Statehood

As overland migration of American settlers from the east into Alta California became more common in the 1840s, relations between the United States and Mexico became strained, with Mexico fearing American encroachment into their territories. The political situation continued to deteriorate and twice Mexico rejected an American offer to purchase California. In 1836, a revolution in Texas drove out the Mexican government and created an independent republic. This republic was annexed to the United States in 1845, causing a rift in the diplomatic relations of the two nations. The following year Mexico and the United States were at war. American attempts to seize control of California quickly ensued, and within two months, California was conquered by the United States. Skirmishes between the two sides continued until California was officially annexed to the United States in 1848 (Kyle 1990:xiii-xiv).

Shortly after the signing of the Treaty of Guadalupe Hidalgo, the discovery of gold in the Sierra Nevada ignited a major population increase in the northern half of California as immigrants poured into the territory seeking gold or the opportunities inherent in producing goods or services for miners. Prior to the Gold Rush, San Francisco was a small settlement with an approximate population of 800 inhabitants. With the discovery of gold and the sudden influx of thousands of optimistic gold seekers, a city of canvas and wood sprang up as men and goods streamed into the once isolated outpost.

California statehood and the end of Mexican rule ushered in yet another body of laws that governed life in this rapidly changing landscape. Of particular importance to both the people who had established themselves in California during the Mexican era and to those recent immigrants who hoped to settle in California after the gold rush, were the laws governing property ownership. Although Mexican citizens had been assured of their property rights after annexation, the frenzy of the gold rush made northern California's vast rancho lands irresistible to new arrivals, who often squatted on property that they did not own. In 1851 the U.S. government established a land commission to bring order to the increasingly chaotic situation. The three-member commission was assigned the formidable task of authenticating land titles granted by the Mexican government, placing the burden of proof on the property owners themselves. Long-time residents spent much of the next two decades trying to gain clear title to their land, often gaining title only to have to use the land itself to pay the legal bills that had accumulated during the process.

The Final Decades of the 19th Century

Increased settlement after statehood and the division of many of the large ranchos led to a shift from the ranching economy favored by Spanish and Mexican landholders to an economy based at first on cattle and grain agriculure, such as wheat, then increasingly on orchard and specialty vegetable agriculture. Irrigation became a vital component in the region's productivity (Beck and Haase 1988:93-97). Crops such as grapes, peaches, walnuts, and vegetables proved to be particularly suited to the region, and served as a catalyst for an industry built around providing goods and services to farmers.

At the time that Thompson & West mapped Santa Clara County in 1876, the project area extended from the western portion of the marshland acreage owned by Henry Tiffney, 3.5 mi. to the southwest. This encompassed much of the original Rancho Rincon De San Francisquito purchased by Jeremiah Clark in 1859.

Although today the project area is situated near a major transportation corridor, 19th century residents were somewhat isolated from early population centers such as San Francisco due to the region's topography as well as the primitive state of early transportation. Prior to the establishment of railroads, residents relied on ferries to cross the bay and stages and horse cars to navigate the often-difficult roadways.

These early travel corridors were firmly established when railroad lines were constructed throughout the region. Not only were the transcontinental lines established by the Central Pacific and later the Western Pacific important, but the interconnected network of local lines was significant as well. The location of stations along these lines largely determined the points of development that would soon form the downtown cores of the Bay Area's early cities and towns. Similarly, the lines formalized the corridors that would become home to the area's industries that were largely dependent on rail transportation. Future infrastructure, such as highways and public transportation, continued to follow the routes solidified by the railroads.

Overland travelers relied on the well-worn path of El Camino Real until 1864, when the San Francisco-San Jose Railroad Company train established service between San Francisco and San Jose. The rail line ran parallel to El Camino Real and encouraged development east of El Camino near the new train depots (Hynding 1984:64). The Southern Pacific, and in turn, the Central Pacific quickly absorbed the SF-SJ line. It would remain the only rail line on the Peninsula throughout the 19th century (Hynding 1984:64). Near the project area, the Mayfield farm and then the Mayfield railroad depot encouraged early commerce and residential development.

In 1852 a lawyer by the name of Leland Stanford moved from New York to Sacramento. He prospered as a miner, a merchant, and eventually as the President and co-founder of the Central Pacific Railroad, which allowed him to gain political office as Governor. Following his tenure as governor, he concentrated his efforts in successfully making the Central Pacific first transcontinental railroad. This company was later merged with Southern Pacific Railroad. In 1870, Stanford purchased the Rancho San Francisquito. On this land he established a farm dedicated to breeding pedigree racehorses, which he named Palo Alto. In 1884, Stanford's only son died at the age of sixteen. As a memorial to him, Stanford established a university, which was opened for classes in 1891.

The oldest parts of the modern city of Palo Alto were at one time known as Mayfield and College Terrace. Mayfield was established as a town in 1867, although the first schoolhouse there dates to 1855. The town is named after one of the early farms owned by Sarah Wallis, who was the first president of the California Suffrage Association. Subsequent to its founding, Mayfield earned a reputation for the thirteen unruly saloons in town. Stanford disapproved of alcohol and used his influence to modify that reputation. He convinced an associate, T. Hopkins, to purchase 740 acres of land located southeast of Menlo Park, along El Camino Real, which would became known as the town of University Park, and would prohibit the sale of alcohol. University Park soon became known as Palo Alto, and was incorporated in 1894. By 1889, the area between Stanford University and Mayfield was settled. Originally it was called University Terrace but later was subsumed into the growing City of Palo Alto. In 1925 Mayfield was annexed by Palo Alto. The prohibition of alcohol that was started in University Park was continued in Palo Alto until after World War II (Hoover et al. as cited in Kyle 1990: 419-420).

In the 20th century, Palo Alto benefited from technological growth in Silicon Valley. Currently, the city continues to be an economic center for the technology industry. Xerox, Amazon.com, Lockheed Martin, and Hewlett-Packard are major technology firms that maintain offices in Stanford Research Park.

20th Century Expansion

In the early decades of the 20th century, the waterfront communities of the Peninsula became increasingly connected to both San Francisco and the East Bay. El Camino became the first paved highway in the vicinity of the project area, and in the 1930s, the stretch of the newly constructed Bayshore Highway between Redwood City and the Santa Clara Valley was completed (Hynding 1984:258). By 1930, the Dumbarton Bridge (between Ravenswood Point and Dumbarton Point) as well as the San Mateo Bridge linked communities on both sides of the southern portion of San Francisco Bay.

An increasing population required improvements in local infrastructure. When the newly incorporated City of Palo Alto began construction of its first sewage system in 1898, it had been designed to serve approximately 3,000 people. The system discharged into Mayfield Slough, an area that, by the 1920s, was being planned for recreational development. In addition, the presence of a yacht harbor in the vicinity of the sewage outflow, damage to the Baylands park area, tide related overflows, and population growth necessitated a new method of sewage disposal.

The first wastewater treatment facility in Palo Alto began operating in 1934. The original site is still used for the current wastewater treatment facility (the RWQCP in the project area), although it has been substantially renovated over time. The 1934 facility served the 20,500 people of the Palo Alto area as well as a local cannery, processing up to three million gallons of wastewater per day.

While there had been a flood of immigrants into California during the Great Depression, the influx during World War II was substantially greater. The defense industry expanded and cities surrounding the Bay developed rapidly (Kyle 1990: xvi). New shipyards came into existence, the number of factories in use increased by a third, and the population of industrial workers more than doubled (Cole 1988:129). The output of Bay Area shipbuilding facilities - 1,400 vessels during a war that lasted 1,365 days - remains staggering.

California also became an important location for installations of all branches of the United States military during the war. Largely because a portion of the war was fought in the Pacific theater, and the attack on Pearl Harbor made California a strategic location, the Army, Air Force, Navy, and Marines utilized the human and natural resources of the Bay Area for national defense (Beck and Haase 1988:86-88). As well as the industrial facilities along the bayshore, the Alameda Naval Air Station, the Oakland Army Base, Moffett Field, and local Army training camps drew civilian and military families to the communities surrounding the project area.

In addition to heavy industries, such as shipbuilding, high-tech industries such as electronics also expanded rapidly during this period. After the war, these firms began to contribute to the emerging field of communications (Hynding 1984:270). In addition to drawing manpower, the facilities established during the war effort spurred industrial and high-tech research that laid the foundation for today’s economy that is increasingly reliant on the innovation of highly skilled workers.

After World War II, the wastewater treatment facility, part of the project area, was upgraded to process five million gallons of wastewater, and again in 1957 to treat ten million gallons per day. In 1964, a new outflow was built to prevent discharge in the ecologically damaged Yacht Harbor, which had by this time ceased operations. No buildings remain from the 1934 treatment facility.

The facility was expanded in 1969-1972 on the existing site to become a new regional wastewater treatment facility (the RWQCP) serving the communities of Palo Alto, Los Altos, and Mountain View. This secondary treatment facility greatly improved wastewater disposal and reduced pollution in the area. In 1975, and then again in 1978, the facility was upgraded to an advanced tertiary treatment facility. In 1987, the capacity of the plant was expanded again. No pre-1950 original buildings remain at the plant.

3.0 Results of the Records Search

On October 23, 2014, WSA conducted a records search for the Project at the Northwest Information Center at Sonoma State University (NWIC) (File No. 14-0533). The records search included a review of cultural resource and excavation reports and recorded cultural resources within a 1/4-mile radius of the Project APE. The records search also included a review of the Office of Historic Preservation's "Directory of Historic Property Data File for Santa Clara County" and "Archaeological Determinations of Eligibility" for Santa Clara County.

A total of 91 cultural resources studies have been conducted within 1/4 mile of the project APE. Twenty-two (22) studies include or cross some portion of the project components (Table 5).The remaining 69 studies do not include project components but have been conducted within ¼-mile of the project APE (Table 6).

Table 5. Cultural resource studies within the project APE

Survey #	Date	Author	Title
S-005023	1982	Cartier, Robert	Cultural Resources Evaluation for a Parcel for land at 3860 Middlefield Road in the City of Palo Alto, County of Santa Clara
S-009442	1987	Cartier, Robert	Cultural Resource Evaluation of the Matadero Creek Flood Control Project in the City of Palo Alto, County of Santa Clara
S-017993	1995	Hatoff, Brian, Barb Voss, Sharon Waechter, Stephen Wee, and Vance Bente	Cultural Resources Inventory Report for the Proposed Mojave Northward Expansion Project

Survey #	Date	Author	Title
S-022605	1999	Cartier, Robert	Cultural Resource Evaluation of the Sprint PCS Mitchell Park Project at 3600 Middlefield Road in the City of Palo Alto, County of Santa Clara
S-022978	2000	Avina, Mike	Final Cultural Resources Inventory Report for Williams Communications, INC. Fiber Optic Cable System Installation Project, San Francisco to Santa Clara, San Francisco, San Mateo, and Santa Clara Counties, Addendum 1
S-025174	2002	Holson, John, Cordelia Sutch, and Stephanie Pau	Cultural Resources Report for San Bruno to Mountain View Internodal Level 3 Fiber Optics Project in San Mateo and Santa Clara Counties, California
S-027709	2003	Losee, Carolyn	Cultural Resources Analysis for Cingular BA-351-02 Mayfield Station #2 Site (letter report)
S-027908	2003	Environmental Science Associates	Palo Alto Regional Water Quality Control Plant Reuse Pipeline, Cultural Resources Inventory Report
S-029657	2002	Nelson, Wendy, Tammara Norton, Larry Chiea, and Reinhard Pribish	Archaeological Inventory for the Caltrain Electrification Program Alternative in San Francisco, San Mateo, and Santa Clara Counties, California
S-033697	2007	Martorana, Dean	Palo Alto Regional Water Quality Control Plant Reuse Pipeline, Santa Clara County, California: Cultural Resources Inventory
S-022704	2000	Ballard, Hannah	Cultural Resources Survey of the Point to Point Web TV Service Connection, Santa Clara County (letter report)
S-018367	1995	Mark Hylkema, Mara Melandry, and Tom McDonnell	Historic Property Survey Report and Finding of No Effect for the Proposed Ramp Metering and HOV Ramp Project, 4-SCL-101 PM 40.0/52.5, EA 132451

Survey #	Date	Author	Title
S-029573	2000	Jonathan Goodrich	Final Report, Archaeological Survey and Record Search for the Six Fluor Global Fiber Optic Segments, Mountain View, Palo Alto, and San Mateo County, California.
S-034074	2007	Eric Strother, Aimee Arrigoni, Drew Bailey, James Allan, and William Self	Cultural Resource Assessment, Palo Alto Regional Water Quality Control Plant, UV Disinfection Project, Palo Alto, Santa Clara County, California
S-035123	2008	Brian F. Byrd and Michael Darcangelo	Archaeological Survey Report for the US 101 Auxiliary Lanes (Route 85 to Embarcadero Road) Project, Santa Clara County, California, 04-SCL-101 PM 48.97/52.17 EA 04-4A3300
S-037075	2008	Adrian Whitaker	Historic Resources Compliance Report for the U.S. 101 Auxiliary Lanes (Route 85 to Embarcadero Road) Project, Santa Clara County, California, 04-SCL-101 PM 52.17-48.97 EA 04-4A330
S-039266	2012	Jennifer Thomas and Jack Meyer	Cultural Resources Study for the Line 101 South ILI Upgrade Project, Santa Clara County, California
S-039469	2012	Neal Kaptain	Historical Resources Compliance Report for the San Mateo County SMART Corridors Project, Segment III, Redwood City, Atherton, Menlo Park, East Palo Alto, and Palo Alto, San Mateo County & Santa Clara County, California; EA #4A9201; EFIS #0400001169, Caltr
S-043191	2013	Kathleen Kubal and Jay Rehor	Historic Property Survey Report, State Route 85 Express Lanes Project, Santa Clara County, CA, US 101 PM 23.1-28.6, SR 85 PM 0.0-24.1, US 101 PM 47.9-52.0;
S-043191a	2013	Kathleen Kubal	Archaeological Survey Report; Environmentally Sensitve Area Action
S-043191b	2013	Jay Rehor and Kathleen Kubal	Extended Phase I Study, State Route 85 Express Lanes Project, Santa Clara County, California

Survey #	Date	Author	Title
S-044044	2014	Heidi Koenig	Historic Property Survey Report Highway 101 Overcrossing Project Palo Alto, Santa Clara County, CA County Post Mile SCL 50.684

Table 6. Cultural resource studies within ¼-mile of the project area

Survey #	Date	Author	Title
S-004883	1977	Santa Clara County Transportation Agency	Historic Property Survey Report, Oregon-Page Mill Expressway Intersection Improvements at El Camino Real, Palo Alto, CA
S-008420	1981a	Cartier, Robert	Cultural Resources Evaluation of the Peter Coutts Hill project, Stanford University, County of Santa Clara
S-011396	1989	BioSystems Analysis, Inc	Technical Report of Cultural Resources Studies for the Proposed WTG-WEST, Inc. Los Angeles to San Francisco and Sacramento, California, Fiber Optic Cable Project
S-025159	2002	Nadolski, John, and Michelle St. Clair	Archaeological Investigations for the 2950 West Bayshore Road, Wireless Communications Site, CA 2287H
S-029698	2005	Thal, Erika	Equipment Shelter, PG&E City of Palo Alto/ SF-05252A, 1080 Colorado Avenue, Palo Alto, CA.
S-004201	1997	Anonymous	Archaeological Reconnaissance of the Proposed Palo Alto Yacht Harbor Expansion
S-004279	1976	Riley, Lynn	Archaeological Reconnaissance, Proposed Site of Sanitary Land Fill, Santa Clara County, California
S-006051	1983	Clark, Mathew	Archaeological Reconnaissance and Records Search for the Proposed Bryan Canyon/Kaiser Permanente Solid Waste Landfill Access and Transfer Stations

Survey #	Date	Author	Title
S-008589	1981	Cartier, Robert	Cultural Resource Evaluation of the Terman School Low-cost Housing Project near Arastradero and Pomona Avenue in the City of Palo Alto, County of Santa Clara
S-008728	1949	Caldwell, Warren Wendell	The Archaeology of the Stanford-Palo Alto Region
S-014246	1992	Archaeological Resource Management	Cultural Resource Evaluation of the Veterans Administration Medical Center Project in the City of Palo Alto, County of Santa Clara
S-014974	1992	Hammett, Julia	Archaeological Concerns Related to Lockheed's Toxic Substances Control Program (letter report)
S-014975	1992	Bennett, J.M.	Stanford Segment of Line 109/132; Cultural Resources Testing of Site CA-SCL-628 (letter report)
S-016137	1994a	Holman, Miley P.	Archaeological Field Inspection of the Page Mill Road and Foothill Road Expressway Improvement Project, Palo Alto, Santa Clara County, California
S-017518	1975	Jackson, Thomas L.	An Archaeological Reconnaissance of the Junipero Serra Boulevard Study (letter report)
S-018047	1994b	Holman, Miley P.	Archaeological Field Inspection of the Palo Alto Golf Course, Palo Alto, Santa Clara County, California
S-020483	1998a	Price, Barry A.	Cultural Resources Assessment, Pacific Bell Mobile Services Facility SF-530-03,Palo Alto, Santa Clara County, California (letter report)
S-020910	1998	Psota, Sunshine	Review of Historic Resources for Site SF-142-02, 711 Colorado Avenue, Palo Alto, Santa Clara County, CA (50001 84/98) (letter report)

Survey #	Date	Author	Title
S-023888	2001	Losee, Carolyn	Record Search Results for Sprint Spectrum's Personal Communication Series (PCS) Wireless "Long's Drugs" Site (Ref # SF33XC572F) (letter report)
S-028669	2004	Holman, Miley P.	Archaeological File Study of the 901 San Antonio Road Project Area, Palo Alto, Santa Clara County, California
S-029231	2000	Billat, Lorna	Nextel Communications Wireless Telecommunications Service Facility-Santa Clara County, Nextel Site No. (CA-0171A) / Page Mill Road (letter report)
S-029233	n.d.	Billat, Lorna	Nextel Communications Wireless Telecommunications Service Facility-Santa Clara County, Nextel Site No. (CA-0871A)/ Oregon Expressway (letter report)
S-030233	2004a	Losee, Carolyn	Cultural Resources Analysis for Cingular Wireless Site BA-350-02, "California Avenue Caltrain Station", Palo Alto, California (letter report)
S-033281	2005	Supernowicz, Dana E.	Cultural Resource Study of the Middlefield & Meadow Dr. (Achieve School) Project, Cingular Wireless Site No. SCFCCA2074F, 3860 Middlefield Road, Palo Alto, Santa County, California 94303
S-008345	1980	Melandry, Mara	Archaeological Survey Report, 04-SCL-101, Portions of P.M. 38.3/52/5, Improvements to Route 101 between Route 17 and Embarcadero Road
S-012528	1991	Garaventa, Donna, Rebecca L. Anastasio, Stuart A. Guedon, Sondra Jarvis, Lisa A. Pujol, Steven J. Rossa	Cultural Resources Assessment for 1990 General Plan Update, City of Mountain View, Santa Clara County, California
S-032250	2003	Lapin, Philippe	Historic Property Survey Report, Mission Bells Project, State Route 82/Interstate 101, San Mateo and Santa Clara Counties, California

Survey #	Date	Author	Title
S-003123	1975	Stephen A. Dietz	An Assessment of the Archaeological and Paleontological Resources as May be Impacted by the South Bay Dischargers Authority's Proposed Joint Outfall Pipeline
S-003163	1973	Stephen A. Dietz	An archaeological reconnaissance of the proposed Dumbarton Bridge replacement project (letter report)
S-004411	1977	Stephen A. Dietz	Archaeological Reconnaissance and Literature Survey for the City of Palo Alto Regional Wastewater Treatment Works
S-007545	1985	David Chavez	Adobe Creek Mausoleum, Alta Mesa Memorial Park, Palo Alto (letter report)
S-012528	1990	Donna M. Garaventa, Rebecca L. Anastasio, Stuart A. Guedon, Sondra Jarvis, Lisa A. Pujol, and Steven J. Rossa	Cultural Resources Assessment for 1990 General Plan Update, City of Mountain View, Santa Clara County, California
S-020135	1997	Robert Cartier	Archaeological Testing at 4277 Miranda Avenue in the City of Palo Alto, California
S-020550	1998	Barry A. Price	Cultural Resources Assessment, Pacific Bell Mobile Services Facility SF-614-03, Palo Alto, Santa Clara County, California (letter report)
S-024125	2000	Archaeological Resource Management	Cultural Resources Evaluation, Property at #797 and #807 Matadero Avenue, Palo Alto, CA
S-024987	2001	Colin Busby	Archaeological Literature Search - HOV Lanes (letter report)
S-026604	2000	William Roop	A Cultural Resources Evaluation of the Lands of Midgal, 797 and 807 Matadero Road, Palo Alto, California

Survey #	**Date**	**Author**	**Title**
S-033061a	2006	Nancy Sikes, Cindy Arrington, Bryon Bass, Chris Corey, Kevin Hunt, Steve O'Neil, Catherine Pruett, Tony Sawyer, Michael Tuma, Leslie Wagner, and Alex Wesson	Cultural Resources Final Report of Monitoring and Findings for the Qwest Network Construction Project, State of California
S-033061b	2007	Nancy E. Sikes	Final Report of Monitoring and Findings for the Qwest Network Construction Project (letter report)
S-033545	1994	National Park Service	Draft Comprehensive Management and Use Plan and Environmental Impact Statement, Juan Bautista de Anza National Historic Trail, Arizona and California
S-034171	2007	Miley Paul Holman	Archaeological Backhoe Testing for Cultural Resources at the 901 San Antonio Road Project Area, Palo Alto, Santa Clara Couty, California (letter report)
S-034938	2008	Carolyn Losee	Cultural Resources Investigation for Project SNFCCA2512 "Stanford/Cameron Campus Temp" 700 Bowdoin Street, Stanford, Santa Clara County, California 94305, EBI Project 61082128
S-035728	2009	Carolyn Losee	Cultural Resources Analysis for AT&T CN3637-A "Foothill Research Center", 4005 Miranda Avenue, Palo Alto, Santa Clara County, California
S-036055	2009	Carolyn Lossee	Collocation ("CO") Submission Packet FCC Form 621, Project Name: Facebook; Project Number: AT&T Mobility CN5155
S-036303	2009	Denise Jurich, Jesse Martinez, and Emilie Zelazo	Phase II Archaeological Evaluation of Archaeological Site CA-SCL-585, United States Department of Veteran Affairs, Palo Alto Division Medical Campus, Palo Alto, California

Survey #	Date	Author	Title
S-036487	2009	Carolyn Losee	Cultural Resources Investigation for Clearwire Site #CA-SJC0033-D "Eastwick Company", 2696 Marine Way, Mountain View, Santa Clara County, California 94043
S-036518	2009	Marty Arbunich, Adriene Biondo, Barry Lee Brisco, Jane Clemmons, Merritt Colman, Wally Fields, Stephanie Raffel, Carroll Rankin, and Paul Adamson	The Eichler Homes: Context Study
S-036518a	1988	Merle Dean	Joseph Eichler and the Explosion of Post-War Domestic Mass Production in the San Francisco Bay Area, 1950 - 1965
S-036518b	1997		Context Statement: Sunnyvale's Early Eichler Developments
S-036518c	2001	Marty Arbunich and Barry Brisco	Castro Valley, Eichlers
S-036670	2009	Brian Hatoff	Verizon Cellular Communications Location Site - Meadow and Middlefield; 3672 Middlefield Road, Palo Alto, CA 94303
S-036762	2010	Carrie Wills	Cultural Resources Record Search and Site Vistit for Clearwire Candidate CA-SJC0048C (Sprint Midtown), 2701 Middlefield Road, Palo Alto, Santa Clara County, California
S-036910	2010	Carolyn Losee	Collocation ("CO") Submission Packet, FCC Form 621, Former Offices of Beckham Coulter, Inc., 1050 Page Mill Road, Palo Alto, California 94306
S-037074	2008	Adrian Whitaker	Extended Phase I Testing for the U.S. 101 Auxiliary Lanes (Route 85 to Embarcadero Road) Project, Santa Clara County, California, 04-SCL-101 PM 52-17-48.97 EA 04-4A330O
S-037287	2010	Lorna Billat and Dana Supernowicz	Collocation ("CO") Submission Packet, FCC Form 621, Arastradero Apartments, SF44919C
S-037483	2010	Carrie Wills	Cultural Resources Records Search and Site Visit for T-Mobile West Corporation, a

Survey #	Date	Author	Title
			Delaware Corporation, Candidate SF54260F (Light Foothill Expressway), Page Mill Road and Foothill Expressway, Palo Alto, Santa Clara County, California (letter report)
S-037748	2010	Heidi Koenig	G.A.R.-Field Park. Mountain View, Santa Clara County, Archaeological Survey Report
S-038085	2010	Aniela Travers	Cultural Resources Analysis, Coyote Hill/SFO-4530, 1501 Page Mill Road, Palo Alto, Santa Clara County, California 94304
S-039088	2010	Colin I. Busby	Cultural Resources Review - Records Search, Limited Literature Review, and Native American Consultation, Sewer Rehabilitation Project - East Palo Alto Sanitary District, Santa Clara County (letter report)
S-039469a	2012	Neal Kaptain	Archaeological Survey Report for the San Mateo County SMART Corridors Project, Segment III, Redwood City, Atherton, Menlo Park, East Palo Alto, and Palo Alto, San Mateo County and Santa Clara County, California; EA #4A9201; EFIS #0400001169; Caltrans Dist
S-039469b	2012	Neal Kaptain	Post-Review Discovery and Monitoring Plan for the San Mateo County SMART Corridors Project, Segment III, Redwood City, Atherton, Menlo Park, East Palo Alto, and Palo Alto, San Mateo County and Santa Clara County, California; EA #4A9201; EFIS #0400001169,
S-039620	2012	James M. Allan	Archaeological Monitoring of B/4B Project, Palo Alto, CA (letter report)
S-039718	2012	Wayne H. Bonner and Kathleen A. Crawford	Direct APE Historic Architectural Assessment for T-Mobile West, LLC Candidate SF04614A (Stanford Inn), 531 Stanford Avenue, Palo Alto, Santa Clara County, California (letter report)
S-039735	2012	Jessica Tudor and Kathleen A. Crawford	Cultural Resources Records Search and Site Visit Results for T-Mobile West, LLC Candidate SF04614A (Stanford Inn), 531 Stanford Avenue, Palo Alto, Santa Clara

Survey #	Date	Author	Title
			County, California (letter report)
S-041536	2001	Michael Corbett and Denise Bradley	Final Survey Report, Palo Alto Historical Survey Update, August 1997- August 2000
S-041600	2012	Dana Supernowicz	Cultural Resources Study of the Palo Alto Odas Project, Nodes P1N1B, P1N7A,P1N10B, P1N13A,P1N4A,P1N16A,P1N16B,P1N21A,P1N29AP1N34A, Palo Alto, Santa Clara County, CA
S-043328	2013	Lorna Billat and Dana Supernowicz	New Tower Submission Packet; Baylands/Palo Alto; CNU4060;1901 Embarcadero Road, Santa Clara, CA; Architectural Evaluation Study of the Baylands/Palo Alto Project, AT&T Mobility site #CNU4060, 1901 Embarcadero Rd, Palo Alto, Santa Clara County, CA 94303
S-043758	2013	Sharon A. Waechter	Excavations at CA-SCL-628 on Matadero Creek, Palo Alto, California
S-044044b	2014	Heidi Koenig	Archaeological Survey Report Highway 101 Overcrossing Project Palo Alto, Santa Clara County, CA County Post Mile SCL 50.684

The records search indicated that one previously recorded resource (a historic railroad, P-43-000928) crosses the project APE and is discussed below (Figure 6). Fifteen (15) other previously recorded archaeological sites are located within ¼-mile of the project area (Table 7). Twelve of the sites are prehistoric shell middens, three are prehistoric quarry areas and one is a historic railroad. The shell midden sites are evidence of significant prehistoric settlement of the area and appear to be along Matadero and Barron creeks. The quarry sites are located in the lower margins of the Los Altos Hills.

P-43-000928

The resource is a segment of the Southern Pacific Railroad that is now Caltrain (Corbett 1995). Originally, the line was the San Francisco and San Jose Railroad (SF&SJ) that began operation in 1864. In the 20th century the line was popularly known as the Southern Pacific "Ocean View Line" (Corbett 1995), In the late 1950s, the Southern Pacific Railroad rehabilitated the line with heavier rails and to more exacting engineering standards to operate it as a commuter line. The

Table 7. Cultural resources within ¼-mile of the project area

Primary Number	Trinomial	Site Description	Recording Events[5]
P-43-000023	CA-SCL-000003	Prehistoric midden/ lithic scatter; burials; hearths/pit features; habitation debris	Slaymaker*); 1900 (Unknown*, Stanford University); 1949 (Pilling*); 1984; 1985 (Barbara Bocek, Stanford University); 2010 (D. Daly, K. Turner, Stanford University)
P-43-000055	CA-SCL-000036	Prehistoric midden/ habitation debris	1951 (D.W.L.); 1987 (Barb Bocek, Stanford University)
P-43-000441	CA-SCL-000439/H	Prehistoric midden/ lithic debris	1978 (C. Desgrandchamp, C. Sutton); 2007 (Michael Darcangelo, Far Western Anthropological Research Group, Inc.); 2008 (Adrian Whitaker, Far Western Anthropological)
P-43-000580	CA-SCL-000585	Prehistoric midden/ lithic scatter; burials; habitation debris	1985 (Bocek / Rutherford); 2009 (Jurich, Martinez, Zelazo)
P-43-000591	CA-SCL-000596	Prehistoric midden/ lithic scatter; burials; habitation debris	1986 (Barbara Bocek, Stanford University)
P-43-000617	CA-SCL-000622	Prehistoric midden/habitation debris	1987 (Barbara Bocek, Stanford University)
P-43-000619	CA-SCL-000624	Prehistoric midden/ habitation debris	1987 (CARTIER / ENGLAND, De Anza College Field Studies)
P-43-000627	CA-SCL-000700	Prehistoric midden/ habitation debris	1990 (Barbara Bocek, Stanford University)
P-43-000634	CA-SCL-000716	Prehistoric midden/ lithic scatter; habitation debris	1991 (Barbara Bocek, Stanford University)

[5] References marked with an * are cited in others documents and were not in WSA's possession.

Primary Number	Trinomial	Site Description	Recording Events[5]
P-43-000662	CA-SCL-000628	Prehistoric midden/lithic scatter; hearths/pit features; habitation debris	1987 (Barb Bocek, Stanford University); 2013 (S. Waechter, M. Darcangelo, FWARG)
P-43-000663	CA-SCL-000630	Prehistoric quarry/ lithic scatter; petroglyphs	1987 (Barb Bocek, Stanford University); 2010 (D. Daly, K. Turner,, Stanford University)
P-43-000664	CA-SCL-000631	Prehistoric quarry/ lithic scatter	1987 (Barb Bocek, Stanford University); 1987 (Barb Bocek, Stanford University); 2010 (D.Daly, K.Turner, Stanford University); 2010 (D. Daly, K. Reinhart, K. Turner, Stanford University)
P-43-000670	CA-SCL-000708	Prehistoric midden/ habitation debris	1990 (Barb Bocek, Stanford University)
P-43-000928	CA-SCL-898H	Historic railroad/berm and tracks	1995 (Michael Corbert)
P-43-002626	N/A	Shell scatter, possible midden	2012 (Neal Kaptain, LSA)
P-43-002656	CA-SCL-000900	Possible prehistoric quarry/ lithic scatter	2011 (D. Daly, K. Turner, Stanford University)

Southern Pacific operated this commuter service with varying degrees of financial success through the 1970s, finally filing for abandonment of service in the late 1970s (Corbett 1995). In the early 1980s, the State of California leased much of the line to operate what it called "Caltrain." The State of California continued to operate the facility, formally known as the Peninsula Commute Service through the 1980s. In 1991, however, the state transferred its interest to a Joint Powers Board, representing affected counties and municipalities, chiefly Santa Clara and San Mateo counties (Corbett 1995). Caltrain is governed by the Peninsula Corridor Joint Powers Board (PCJPB), which consists of agencies from the three Caltrain counties. The member agencies are the City and County of San Francisco, SamTrans and the Santa Clara Valley Transportation Authority.

Segments and numerous features (e.g., bridges, culverts, etc.) of this portion of the railroad line have been recorded (Corbett 1995a,b,c,d,e,f,g). None of the evaluated features have been recommended as eligible for the NRHP. Because the line was substantially rebuilt in the 1950s

Figure 6: Record Search Results

Confidential (Not Included in this Document)

and again in the 1990s in selected locations, where tracks, ties, and plates were replaced, it has been recommended as ineligible for listing in the NRHP (Corbett 1995a,b,c,d,e,f,g).

4.0 Native American Consultation

When the Native American contacts were contacted originally in 2007 regarding this project, no responses to letters were received. Follow up phone calls elicited a few general responses for use of Native American monitors during construction of the pipeline (Strother et al. 2008). Due to changes in the original project, the current WSA scope of work required that Native American consultation be reinitiated. WSA contacted the Native American Heritage Commission (NAHC) by email on October 22, 2014, requesting information on sacred lands and a contact list of local tribal representatives. A response was received from the NAHC on November 5, 2014 noting, "A record search of the sacred land file has failed to indicate the presence of Native American cultural resources in the immediate project area." The letter also provided a list of Santa Clara County Native American Contacts. A list of Native American contacts was included in the response (Jakki Kehl; Irene Zwierlein, Amah/Mutsun Tribal Band; Katherine Erolinda Perez; Michelle Zimmer, Amah Mutsun Tribal Band of Mission San Juan Bautista; Valentin Lopez, Amah Mutsun Tribal Band; Linda G. Yamane; Ann Marie Sayers, Indian Canyon Mutsun Band of Costanoan; Rosemary Cambra, Muwekma Ohlone Indian Tribe of the SF Bay Area; Andrew Galvan, The Ohlone Indian Tribe; and Ramona Garibay, Trina Marine Ruano Family). WSA contacted the Native American representatives by letter, on November 18, 2014, informing them of the project. Follow-up phone calls to the Native American representatives were placed on December 2, 2014. Irene Zwierlein and Ramona Garibay agreed with WSA recommendations, Ann Marie Sayers recommended that Native American monitors be used in addition to archaeological monitors, and Rosemary Cambra requested more information about the project. No other comments or recommendations were received.

5.0 Survey Methods

WSA Staff Archaeologist Thomas Young conducted a field reconnaissance of the proposed Palo Alto Recycled Water Project on October 24, 2014. Because the Project APE is extensively urbanized and built up area very little exposed ground surface was available for viewing. Most of the exposed ground surface appears in landscaped areas along roadways and parking surfaces. The pipeline (both backbone and lateral) alignments are predominately located within asphalted roadways, the booster pump station footprint is within an asphalted parking area next to the Mayfield soccer fields, and approximately 75 percent of the potential pump locations with the RWQCP are covered with concrete or asphalt. Even the creek crossings are areas with almost no ground visibility, as all of the creeks are channelized and concreted. Mr. Young drove the entire APE stopping to investigate any exposed ground surface for the presence of prehistoric or historic artifacts and any evidence for the presence of cultural soils such as shell midden. He also inspected the APE for standing historic structures that may be within the Project APE.

One hundred percent of all exposed ground surface within the Project APE was examined for the presence of historic or prehistoric site indicators. Historic site indicators include, but are not limited to foundations, fence lines, ditches, standing buildings, objects or structures such as sheds, or concentrations of materials at least 50 years in age, such as domestic refuse (glass bottles, ceramics, toys, buttons or leather shoes), or refuse from other pursuits such as agriculture (e.g., metal tanks, farm machinery parts, horse shoes) or structural materials (e.g., nails, glass window panes, corrugated metal, wood posts or planks, metal pipes and fittings, etc.). Prehistoric site indicators include, but are not limited to areas of darker soil with concentrations of ash, charcoal, bits of animal bone (burned or unburned), shell, flaked stone, ground stone, or even human bone.

6.0 Results of the Field Survey

The survey will be discussed in order of backbone pipeline and lateral pipelines, the two pipeline options for the proposed pipeline, the booster pump station at Mayfield Soccer Fields, and finally the RWQCP.

6.1 Backbone Pipeline

The APE for the pipe backbone encompasses land developed for both residential and commercial use. No undeveloped parcels were encountered during the survey of the proposed backbone pipeline APE.

The northeastern half of the proposed backbone pipeline APE is primarily residential. This section of the APE includes Fabian Way, East Meadow Drive, Cowper Street, El Dorado Avenue and El Carmelo Avenue (see Appendix B: Photo 1). This residential area contains single-family homes with landscaped grass lawns. Commercial office buildings comprise the far eastern section of East Meadow Road (just west of Highway 101). As a result of the density of development and paved streets in this section of the proposed backbone pipeline APE, ground visibility is lacking due to modern development and landscaping. No cultural resources were observed during the survey.

The southwestern half of the proposed backbone pipeline APE consists primarily of commercial development, composed of office buildings, a city park and complexes of buildings for various law and technology firms (see Appendix B: Photo 2). This section of the APE includes Alma Street, Page Mill Road, El Camino Real, Hansen Way, Hanover Street, California Avenue, Hillview Avenue and Miranda Avenue. Similar to the eastern section of the proposed backbone pipeline APE, ground visibility is lacking due to modern development and landscaping. No cultural resources were observed during the survey.

Four creek crossings are along the proposed backbone pipeline APE.

- Along East Meadow Drive just west of Fabian Way, the proposed backbone pipeline APE crosses Adobe Creek. The creek is channelized with concrete banks at the crossing. No cultural material was observed at this creek crossing.
- On Cowper Street west of East Meadow Drive, the proposed backbone pipeline APE crosses Barron Creek (Appendix B: Photo 3). The creek is channelized with concrete banks at the crossing. No cultural material was observed at this creek crossing.
- On Cowper Street east of El Dorado Avenue, the proposed backbone pipeline APE crosses Matadero Creek (Appendix B: Photo 4). The creek is channelized with concrete banks at the crossing. No cultural material was observed at this creek crossing.
- On Hillview Avenue, between Hanover Street and Foothill Expressway, the proposed backbone pipeline APE crosses Matadero Creek (Appendix B: Photo 5). The creek crossing at Hillview Avenue has dirt banks reinforced with concrete "pillows" for erosion control. There are a lot of trees and low plants along the bank. The creek is redirected underground on the east side of Hillview Avenue. No cultural material was observed at this creek crossing.

A railroad crossing is also along the backbone pipeline APE. The APE crosses the railroad from Alma Street to the north end of Page Mill Road. Alma Street is paved as is Page Mill Road (see Appendix B: Photo 6). The railroad tracks are fenced and the survey did not enter into the fenced railroad right-of-way. Exposed ground surface was highly disturbed and no cultural material was observed at this railroad crossing.

6.2 Pipeline Laterals

A total of 10 pipe laterals are included in the APE. These include areas on (1) Middlefield Road, (2) a section of East Meadow Road southwest of the intersection with Cowper Street, (3) Dymond Court south of Cowper Street, (4) Cowper Street west of the intersection with El Dorado, (5) the mall entrance between El Camino Real and Hanover Street on the west side of Page Mill Road, (6) Hanover Street west of Page Mill Road and continuing south on S. California Avenue, (7) Page Mill Road south of Hanover Street and continuing east on Porter Street, (8) along the north side of Foothill Expressway (Miranda Avenue) east of Hillview Avenue continuing north on Arastradero Road, (9) the southern end of Hansen Way, and (10) from Arastradero Road southwest from the intersection with Hillview Avenue continuing northwest on Deer Creek Road continuing to the east through the business park back to Hillview Avenue. The proposed pipeline laterals for the most part are in paved roadways though landscaped residential areas that offered no ground visibility except in strips of landscaped areas. No cultural material was observed along this route.

Some of the laterals cross commercial areas that are also paved. The easternmost pipeline lateral in the commercial area runs southeast from the intersection of El Camino Real and Page Mill Road to the intersection of El Camino Real and Hansen Way (Appendix B: Photo 7). At this intersection, the pipeline will turn and continue southwest along Hansen Way to the bend in the road. This area is strictly commercial, with paved roads and landscaped green areas. No cultural material was observed along this route. Another pipeline lateral is proposed for a paved parking lot between two office buildings on Page Mill Road between El Camino Real and Hanover Street. This parking lot is completely paved and no cultural material was observed. An additional pipeline lateral will be placed on Hanover Street (the section northwest of Page Mill Road) and will continue south onto California Avenue. The portion of this pipeline lateral on Hanover Street is located in a commercial district, which changes to residential as the proposed route turns on to California Avenue (Appendix B: Photo 8). The residential portion of California Avenue is made up of homes with landscaped yards. No cultural material was observed in this section.

A pipeline lateral is proposed for the southernmost section of Page Mill Road. At the intersection of Page Mill Road and Porter Drive, the pipe turns east and continues until it terminates at the intersection of Porter Drive and Hillview Avenue (Appendix B: Photo 9). This section of pipeline lateral continues through a developed commercial area and traversed into residential neighborhoods, with paved sidewalks and landscaped yards. The ground visibility was better in these areas. No cultural material was observed on this section of pipe lateral.

A proposed pipeline lateral will run southeast from the intersection of Hillview Avenue and Foothill Expressway to the intersection of Foothill Expressway to Arastradero Road. It will run along the north side of the Expressway along Miranda Avenue. At the intersection with Arastradero, the lateral turns and continues east along Arastradero Road where it passes Georgia Avenue and terminates at the intersection of Arastradero Road and Willmar Drive (Appendix B: Photo 10). The majority of this proposed pipeline lateral runs through commercial property, a small portion of which is residential. The commercial area running along the Foothill Expressway and continuing along Arastradero Road consists of the Palo Alto Veterans Affairs Hospital and Henry M. Gunn High School. The easternmost finger of this pipeline lateral, on Arastradero Road between Georgia Avenue and Willmar Drive, is residential on the west side of the street, while the east is Alta Mesa Cemetery. No cultural material was observed along this pipeline lateral.

Another proposed pipeline lateral runs along Hillview to the south where it intersects with Arastradero Road. From here it continues west along Arastradero Road to Deer Creek Road and turns to the north. It continues to the end of the business park where it turns to the east along the north side of the business park. It continues back to Hillview Avenue. The majority of this proposed pipeline lateral is on paved roads around commercial property. The stretch from Deer Creek Road to Hillview Avenue crosses along the southern edge of a horse pasture that is fenced private property. The surveyor did not enter the fenced property. (Appendix B: Photo 11). No cultural material was observed along this pipeline lateral.

Two creek crossings are along the proposed pipeline laterals APE.

- Along Middlefield Road just northwest of Ensign Way, the proposed pipeline lateral APE crosses Adobe Creek (Appendix B: Photo 12). The creek is channelized with concrete banks at the crossing. No cultural material was observed at this creek crossing.
- On Miranda Avenue just west of Arastradero Road, the proposed pipeline lateral APE crosses Barron Creek (Appendix B: Photo 13). The creek is exposed on both the north and south sides of Foothill Expressway, which parallels Miranda Avenue to the south. The water level of the creek is low and not moving. The creek banks are dirt that has been reinforced with concrete "pillows" for erosion control near the road. At Arastradero Road the creek has been redirected underground, and at the surface there is a dirt bike/pedestrian pathway. No cultural material was observed at this creek crossing.

6.3 Pipeline Option One

The APE of alignment Option 1 begins at the intersection of East Bayshore Road and crosses US-101 to the south. The APE then continues along Fabian Way for a distance of approximately 650 feet (Appendix B: Photo 14). The area of Fabian Way within the APE of this alignment option is commercial (Appendix B: Photo 15). Ground visibility here is poor. No cultural material was observed within Option 1 alignment.

6.4 Pipeline Option Two

Alignment Option 2 includes a portion of El Camino Real (just south of Page Mill Road) and continues onto Hansen Way (Appendix B: Photo 16). This portion of the APE is developed as a commercial area and includes a business Park with manicured and landscaped lawns with redwoods and small street trees. Ground visibility here is poor. All land within alignment Option 2 was developed. No cultural materials were observed within alignment Option 2.

6.5 Booster Pump Station at Mayfield Soccer Fields

A booster pump station will be required adjacent to the western half of the backbone pipeline APE. The booster pump station is located on the southeastern corner of the intersection of Page Mill Road and El Camino Real at the Mayfield Soccer Fields (Appendix B: Photo 17). The booster pump station location was inspected during the survey. Ground visibility was less than 5 percent here. There was a little bit of exposed ground among a landscaped area, which was investigated for cultural resources; visibility in the landscaped area was approximately 60 percent. No cultural material was observed at this location.

6.6 Regional Water Quality Control Plant

Two areas at the RWQCP location were surveyed: (1) the connection pipeline and (2) three possible locations for aboveground tanks installation on the RWQCP property.

The connection pipeline is located along the E. Bayshore Road, within an area of business parks. The area is paved and landscaped, but the wetlands are just to the northwest of the proposed connection pipeline. Ground visibility here is poor with only landscaped areas open. No cultural material was observed.

The RWQCP is located south of Embarcadero Road and east of Embarcadero Way, and is located on fill. The sloped and mounded topography suggests that soil was moved from other areas within the RWQCP property, possibly related to facility expansion over the years. There are three possible locations for the pump station installation. One location is in the basement of the existing administrative building. The other two locations are on paved portions of the property (Appendix B: Photos 18 and 19). One is on the northeast side of the administration building, and the other location is on the northeast side in the large chlorine contact tank, which dominates the northern portion of the property. The area was investigated for the historic debris that was reported in 2007 as being in the north and northwestern portions of the plant property (WSA 2007). During the survey, no trace of the debris could be found. Ground visibility was less than 20%, and was covered by eucalyptus tree leaf litter. They historic material apparently was collected in 2007. There is no archival data to suggest the presence of historic resources and their presence is considered unlikely.

7.0 Impact Assessment and Recommendations Regarding Discoveries during Construction

7.1 NRHP/CRHR Criteria for Evaluation

Under the National Environmental Policy Act (NEPA), federal agencies have the responsibility to “preserve important historic, cultural and natural aspects of our national heritage...” (Section 101(b)(4), 42 U.S.C. § 4331). The 1966 National Historic Preservation Act (NHPA), as amended, requires Federal agencies to take into account the effects of their undertakings on “historic properties” (i.e., cultural resources eligible for or listed on the National Register of Historic Places [NRHP]), which is done through the Section 106 process as established in 36 CFR Part 800. NEPA review and NHPA Section 106 compliance are typically coordinated, when a Federal action reviewed under NEPA constitutes an undertaking requiring NHPA Section 106 compliance.

The NRHP, created under the NHPA, is the federal list of historic, archaeological, and cultural resources worthy of preservation and is maintained and expanded by the National Park Service on behalf of the Secretary of the Interior. The Office of Historic Preservation in Sacramento, California, administers the local NRHP program under the direction of the State Historic Preservation Officer. Resources listed in the NHRP include districts, sites, buildings, structures, and objects that are significant in American history, prehistory, architecture, archaeology, engineering, and culture.

To guide the selection of properties included in the NRHP, the National Park Service has developed the NRHP Criteria for Evaluation. The criteria are standards by which every property that is nominated to the NRHP is judged. The quality of significance in American history, architecture, archaeology, and culture is possible in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, material, workmanship, feeling, and association and that meet one of the following criteria:

- **Criterion A**: A property is associated with events that have made a significant contribution to the broad patterns of our history; or
- **Criterion B**: A property is associated with the lives of persons significant in our past; or
- **Criterion C**: A property embodies the distinctive characteristics of a type, period, or method of construction or that represent the work of a master, or that possesses high artistic values, or that represents a significant and distinguishable entity whose components make lack individual distinction; or
- **Criterion D**: A property has yielded, or may be likely to yield, information important in prehistory or history (36 CFR Part 60).

Under the California Environment Quality Act (CEQA) both public and private projects with financing or approval from a public agency must assess the project's effects on cultural resources (Public Resources Code Section 21082, 21083.2 and 21084 and California Code of Regulations 10564.5).

Cultural resources are buildings, sites, humanly modified landscapes, traditional cultural properties, structures, or objects that may have historical, architectural, cultural, or scientific importance. CEQA states that if a project will have a significant impact on important cultural resources, then project alternatives and mitigation measures must be considered. However, only significant cultural resources need to be considered in the mitigation plans.

CEQA defines significant historical resources as "resources listed or eligible for listing in the California Register of Historical Resources (CRHR)" (Public Resources Code Section 5024.1). A property may be considered historically significant if it meets the following criteria for listing on the CRHR:

1. It is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. It is associated with the lives of persons important to California's past;
3. It 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. It has yielded or is likely to yield information important in prehistory or history (Public Resources Code Section 5024.1).

<u>Integrity</u>

In addition to meeting one or more of the four specific criteria listed above, a historic property or historic resource must possess "integrity" to qualify for listing in either the NRHP or the CRHR. Integrity is generally evaluated with reference to qualities including location, design (i.e., site structure), materials, workmanship, setting, feeling, and association. A potentially eligible site must retain the integrity of the values that would make it significant. Typically, integrity is indicated by evidence of the preservation of the contextual association of artifacts, ecofacts, and features within the archaeological matrix (as would be required under Criterion D/4) or the retention of the features that maintain contextual association with historical developments or personages that render them significant (Criteria A, B, or C/1, 2, or 3). Evidence of the preservation of this context is typically determined by stratigraphic analysis and analysis of diagnostic artifacts and other temporal data (e.g., obsidian hydration, radiocarbon assay) to ascertain depositional integrity or by the level of preservation of historic and architectural features that associate a property with significant events, personages, or styles.

Integrity refers both to the authenticity of a property's historic identity, as shown by the survival of physical characteristics that existed during its historic period, and to the ability of the property to convey its significance. This is often not an all-or-nothing scenario (determinations can be subjective); however, the final judgment must be based on the relationship between a property's features and its significance.

7.2 Assessment and Recommendations

WSA conducted the archaeological survey of the Project APE for the Palo Alto Recycled Water Facility Project on October 24, 2014.

One resource (P-48-000928) crosses the backbone pipeline APE. It is the Caltrain line that follows the original alignment of the San Francisco and San Jose Railroad (SF&SJ). None of the other previously recorded archaeological sites are within the project APE. The archaeological survey of the project APE failed to identify any previously unrecorded cultural resources.

WSA recommends the following actions.

- San Francisco and San Jose Railroad (P-48-000928) -- the project APE crosses the railroad alignment from Alma Street to the northern end of Page Mill Road. Although the property follows the original alignment of the SF&SJ, which "is associated with events that have made a significant contribution to the broad patterns of our history" (Criterion A) i.e., early railroad construction, the tracks have been replaced and upgraded at least twice (in the 1950s and 1990s) since the original railroad was constructed (Corbett 1995a-g) and no longer retains its integrity its design, materials and workmanship. In addition, because of intense urbanization the railroad does not retain its integrity of setting, feeling, and association. This segment of the property cannot be recommended as eligible for listing in the NRHP. Project construction plans to avoid the property by using a trenchless method that will bore beneath the railroad tracks. The Project will not affect the railroad. No further action is recommended.

- The results of the archaeological sensitivity modeling of the project area identified seven areas of either high or high to moderate archaeological sensitivity.

    - The Adobe Creek crossing on East Meadow Drive is located in an area of high archaeological sensitivity
    - The Adobe Creek crossing along Middlefield Road is located in an area of high archaeological sensitivity
    - The Barron Creek crossing along Cowper Street is located in an area of high archaeological sensitivity
    - The Matadero Creek crossing along Cowper Street is located in an area of high archaeological sensitivity
    - The lateral line along Arastadero Road northeast from the intersection with Miranda Avenue is located in an area of high archaeological sensitivity
    - The Matadero Creek crossing along Hillview Avenue is located in an area of high to moderate archaeological sensitivity
    - The Barron Creek crossing along Miranda Avenue is located in an area of high to moderate archaeological sensitivity

  Due to urbanization and channelization of creeks, ground visibility in these areas was minimal during the archaeological pedestrian survey. Consequently, the field reconnaissance was unable to assess the potential that historic properties are present in these areas. Therefore, WSA recommends that a program of sub-surface testing be conducted to determine whether buried resources are present within the areas of high or high to moderate archaeological sensitivity that will be impacted by Project construction. Only those locations where design confirms that the proposed pipeline would be buried at archaeologically sensitive locations will require subsurface testing. A testing program will be developed to determine the best approach for each location, considering the physical constraints of the urban setting (e.g., structures, traffic). The testing program could consist of multiple core extractions at individual sites; the locations and depths of the boreholes would be determined on the basis of projected depths of excavation at the individual work areas. A qualified archaeologist would monitor the testing efforts, and inspect the cores for prehistoric archaeological site indicators (e.g., chipped chert and obsidian tools, and tool manufacturing waste flakes, grinding implements such as mortars and pestles, and darkened soil that contains dietary debris such as bone fragments and shellfish remains) and historic site indicators (e.g., ceramics, glass, wood, bone, and metal remains).

If the findings of the subsurface testing are negative, then no further actions (e.g., further testing or archaeological monitoring) would be recommended as necessary for NHPA Section 106 compliance. If the findings of the subsurface testing are positive, then a qualified archaeologist will develop an archeological data recovery plan (ADRP) in consultation with the City, the lead Federal agency, the SHPO and other appropriate consulting parties, as applicable, in accordance with the requirements of 36 CFR Part 800. The ADRP shall identify how the proposed data recovery program will be used to evaluate and preserve the significant information the archaeological resource is expected to contain. That is, the ADRP will identify what scientific/historical research questions are applicable to the expected resource, what data classes the resource is expected to possess, and how the expected data classes would address the applicable research questions. Implementation of the ADRP through the development and execution of an appropriate agreement document by the lead Federal agency, the SHPO, the City of Palo Alto, as local Lead Agency, and any other identified signatories, would satisfy the requirements of NHPA Section 106 as outlined at 36 CFR § 800.6. Whether the results of subsurface testing are negative or positive, if Federal funding for the Project is approved, full compliance with Section 106 of the NHPA as determined by the lead Federal agency will be required prior to Project construction.

- .In the event that Native American human remains or funerary objects are discovered, the provisions of the California Health and Safety Code should be followed. Section 7050.5(b) of the California Health and Safety Code states:

  > 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 human remains are discovered has determined, in accordance with Chapter 10 (commencing with Section 27460) of Part 3 of Division 2 of Title 3 of the Government Code, that the remains are not subject to the provisions of Section 27492 of the Government Code or any other related provisions of law concerning investigation of

> the circumstances, manner and cause of death, and the recommendations concerning treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative, in the manner provided in Section 5097.98 of the Public Resources Code.

The County Coroner, upon recognizing the remains as being of Native American origin, is responsible to contact the Native American Heritage Commission within 24 hours. The Commission has various powers and duties to provide for the ultimate disposition of any Native American remains, as does the assigned Most Likely Descendant. Sections 5097.98 and 5097.99 of the Public Resources Code also call for "protection to Native American human burials and skeletal remains from vandalism and inadvertent destruction." The lead federal agency and the City of Palo Alto, as local Lead Agency, will both be notified in the event human remains are encountered during implementation of the ADRP, in compliance with 36 CFR 800.13.

8.0 References Cited

Altschul, J.

1990 Red flag models: the use of modeling in management contexts In *Interpreting space: GIS and archaeology*, Allen, K. M. S., Green, S. W. and Zubrow, E. B. W. (eds). London: Taylor and Francis, 226-238.

Basin Research Associates, Inc.

1994 Recorded Archaeological Resources in Santa Clara County, California. On file at the Northwest Information Center, Sonoma State University, Rohnert Park, CA.

Beardsley, Richard K.

1948 Cultural Sequences in Central California Archaeology. *American Antiquity* 14(1):1-29.

1954 Temporal and Areal Relationships in Central California Archaeology. *University of California Archaeological Survey Reports* 24-25. University of California, Berkeley.

Beck, Warren A. and Ynez D. Haase

1988 *Historical Atlas of California*. University of Oklahoma Press, Norman.

Bennyhoff, James A.

1982 Central California Augustine: Implication for Northern California Archaeology. In *Toward a New Taxonomic Framework for Central California Archaeology: Essays by J.A. Bennyhoff and D.A. Fredrickson*, Richard Hughes, editor, pp. 65-74. Contributions of the University of California Archaeological Research Facility 52, Berkeley.

Bennyhoff, James A. and Richard E. Hughes

1987 Shell Bead Ornament Exchange Networks Between California and the Western Great Basin. In *Anthropological Papers of the American Museum of Natural History*, 64:79-175. American Museum of Natural History, Washington, D.C.

Berlogar Geotechnical Consultants

2006 Report of January 13, 2006 to Standard Pacific Homes re Echelon subdivision, Palo Alto, California. City of Palo Alto file no. 1183.

Berlogar, Long & Associates

1981 Report of March 4, 1981 re Baylands Bike Path, Palo Alto, California. Job no. 869-90. City of Palo Alto file no. 1-34.

Bocek, Barbara R.

1985 Archaeological Site Record for CA-SCL-3 (updating Slaymaker 1924, and Pilling 1949). On file at the Northwest Information Center, Sonoma State University, Rohnert Park, CA.

1986a Hunter Gatherer Ecology and Settlement Mobility Along San Francisquito Creek. Doctoral dissertation. Department of Anthropology, Stanford University, Palo Alto, CA.

1986b Archaeological Site Record for CA-SCL-597 (update of 1949 Warren Caldwell Record). On file at the Northwest Information Center, Sonoma State University, Rohnert Park, CA.

1987a Archaeological Site Record for CA-SCL-616. On file at the Northwest Information Center, Sonoma State University, Rohnert Park, CA.

1987b Archaeological Site Record for CA-SCL-622. On file at the Northwest Information Center, Sonoma State University, Rohnert Park, CA.

1987c Archaeological Site Record for CA-SCL-628. On file at the Northwest Information Center, Sonoma State University, Rohnert Park, CA.

1987d Archaeological Site Record for CA-SCL-630. On file at the Northwest Information Center, Sonoma State University, Rohnert Park, CA.

1987e Archaeological Site Record for CA-SCL-631. On file at the Northwest Information Center, Sonoma State University, Rohnert Park, CA.

1987f Archaeological Site Record for CA-SCL-632. On file at the Northwest Information Center, Sonoma State University, Rohnert Park, CA.

1990a Archaeological Site Record for CA-SCL-707. On file at the Northwest Information Center, Sonoma State University, Rohnert Park, CA.

1990b Archaeological Site Record for CA-SCL-708. On file at the Northwest Information Center, Sonoma State University, Rohnert Park, CA.

1991 Archaeological Site Record for CA-SCL-716. On file at the Northwest Information Center, Sonoma State University, Rohnert Park, CA.

Bocek, Barbara and Barbara Martinez

1985 Archaeological Site Record for CA-SCL-3-I. On file at the Northwest Information Center, Sonoma State University, Rohnert Park, CA.

Bocek, Barbara and James Rutherford

1985 Archaeological Site Record for CA-SCL-585. On file at the Northwest Information Center, Sonoma State University, Rohnert Park, CA.

Breschini, Gary S.

1983 Models of Population Movements in Central California Prehistory. Doctoral dissertation, Department of Anthropology, Washington State University, Pullman.

Brown, Lauren (editor)
1985 *The Audubon Society Nature Guides. Grasslands*. Alfred A. Knopf , New York.

Cambra, Rosemary, A. Leventhal, Laura Jones, L. Field and N. Sanchez
1996 Archaeological Investigations at Kaphan Umux (Three Wolves) Site, CA-SCL-732: A Middle Period Prehistoric Cemetery on Coyote Creek in Southern San Jose, Santa Clara County, California. Report on file at Caltrans District 4 Offices, Oakland, California.

Carmichael, David L.
1990 GIS Predictive Modelling of Prehistoric Site Distributions in Central Montana. In *Interpreting Space: GIS and Archaeology*, edited by K. Allen, S. Green and E. Zubrow, pp. 216-225. Taylor and Francis, London.

Carrico, Richard, Theodore Cooley, and William Eckhardt
2000 Cultural Resources Reconnaissance Survey and Inventory Report for the Metromedia Fiberoptic Cable Project, San Francisco Bay Area and Los Angeles Basin Networks. On file at the Northwest Information Center, Sonoma State University, Rohnert Park, CA.

Cartier, Robert, and Glory Anne Laffey
1988 Archaeological Excavation at CA-SCL-600 on Adobe Creek in the City of Palo Alto, County of Santa Clara. On file at the Northwest Information Center, Sonoma State University, Rohnert Park, CA.

Cartier, Robert, Julie C. Wizorek, and Kim Holanda
1994 Cultural Resource Evaluation of the Adobe Creek Project in the County of Santa Clara. On file at the Northwest Information Center, Sonoma State University, Rohnert Park, CA.

Chartkoff, Joseph L. and Kerry Kona Chartkoff
1984 *The Archaeology of California*. Stanford University Press, Palo Alto, CA.

Corbett, Michael
1995a Site Record for P-43-000928 (Feature CT-18). On file at the Northwest Information Center, Sonoma State University, Rohnert Park, CA.
1995b Site Record for P-43-000928 (Feature CT-17). On file at the Northwest Information Center, Sonoma State University, Rohnert Park, CA.
1995c Site Record for P-43-000928 (Feature SPW-13). On file at the Northwest Information Center, Sonoma State University, Rohnert Park, CA.

1995d Site Record for P-43-000928 (Features CT-15, -16 and -19). On file at the Northwest Information Center, Sonoma State University, Rohnert Park, CA.

1995e Site Record for P-43-000928 (Feature SPW-12). On file at the Northwest Information Center, Sonoma State University, Rohnert Park, CA.

1995f Site Record for P-43-000928 (Feature SPW-11). On file at the Northwest Information Center, Sonoma State University, Rohnert Park, CA.

1995g Site Record for P-43-000928 (Feature SPW-10). On file at the Northwest Information Center, Sonoma State University, Rohnert Park, CA.

Cole, Tom

1988 *A Short History of San Francisco*. Lexicos Publishing, San Francisco, CA.

Cook, Sherburne F.

1943 The Conflict Between the California Mission Indians and White Civilization. *Ibero-Americana* 22. Berkeley, CA.

England, Jan

1987 Archaeological Site Record for CA-SCL-624. On file at the Northwest Information Center, Sonoma State University, Rohnert Park, CA.

Dalla Bona, L.

1994 Cultural Heritage Resource Predictive Modeling Project: Volume 3. Methodological Considerations. Center for Archaeological Resource Prediction, Thunder Bay, ON.

Dean, J. S.

1983 Environmental aspects of modeling. In Cordell, L.S. and D.F. Green *(eds.) Theory and modeling: refining survey strategies for locating prehistoric heritage resources*. Cultural Resources Document 3, edited by, pp. 11-27. Southwestern Region: Forest Service, USDI.

De Vries, David

2008 Soils report for the Palo Alto Recycled Water Facility Project (letter report). Report prepared for William Self Associates, Inc. Report prepared by Mesa Technical, Berkeley, CA.

Ebert, David and Matthew Singer

2004 GIS, Predictive Modeling, Erosion, Site Monitoring. Assemblage: *The Sheffield University Graduate Journal of Archaeology*, Issue 8.

Fages, Pedro

1939 A Historical, Political, and Natural Description of California, by Pedro Fages, Soldier of Spain [1775]. Herbert I. Priestly translator. University of California Press, Berkeley.

Fredrickson, David A.

1994 Spatial and Cultural Units in Central California Archaeology. In *Toward a New Taxonomic Framework for Central California: Essays by James A. Bennyhoff and David A. Fredrickson*, R. Hughes editor, Contributions of the University of California Archaeological Research Facility 15. Berkeley.

Gardner, R.A., F.F. Harradine, et al.

1958 Soil Survey of the Santa Clara Area, California. United States Department of Agriculture, Soil Conservation Service, in cooperation with University of California Agricultural Experiment Station. Series 1941, No. 17, issued June 1958. Washington D.C., Government Printing Office.

Heizer, Robert F. and Franklin Fenega

1939 Archaeological Horizons in Central California. *American Anthropologist* 41:378-399.

Hughes, Richard E. (editor)

1994 *Toward a New Taxonomic Framework for Central California Archaeology. Essays by James A. Bennyhoff and David A. Fredrickson. Berkeley*. Contributions of the University of California Archaeological Research Facility, 15.

Hynding, Alan

1984 *From Frontier to Suburb: The Story of the San Mateo Peninsula*. Star Publishing Company, Belmont, CA.

Jones, Laura

2003 Cultural Resources in the Area of the Trail Alignments Under Study by Santa Clara County in the Stanford Trails Supplemental Environmental Impact Report. On file at the Northwest Information Center, Sonoma State University, Rohnert Park, CA.

J. V. Lowney and Associates

1988 Report of October, 1988 re Ford Aerospace Building, Palo Alto, California. Project no. 686-1. City of Palo Alto file no. 2-83.

Kamermans, H. and M. Wansleeben

1999 Predictive Modeling in Dutch Archaeology, Joining Forces in *New Techniques for Old Times: Computer Applications and Quantitative Methods in Archaeology*, J.A. Barcelo, I. Briz, and A. Vila (eds.). Oxford: Tempus Reparatum, 225-229.

Kohler, T. A. and S. C. Parker

1986 Predictive Models for Archaeological Resource Location in *Advances in Archaeological Method and Theory Vol. 9*, M. B. Schiffer (ed.). Toronto: Academic Press, 397-452.

Kvamme, K. L.

1985 Determining Empirical Relationships Between the Natural Environment and Prehistoric site Locations: A Hunter-Gatherer Example, in *For Concordance in Archaeological Analysis*, edited by Christopher Carr, pp. 208-237. Westport Publishers, University of Arkansas.

1990 One-Sample Tests in Regional Archaeological Analysis: New Possibilities Through Computer Technology. *American Antiquity* 55: 367-381.

Kroeber, Alfred L.

1925 *Handbook of the Indians of California*. Bureau of American Ethnology of the Smithsonian Institution. Bulletin 78, Washington.

Kyle, Douglas E. (revised by)

1990 *Historic Spots in California*. 4 edition, Stanford University Press, Stanford, CA.

Levy, Richard S.

1978 Costanoan. In *Handbook of North American Indians*, Volume 8, California, Robert F. Heizer editor, pp. 485-495. Smithsonian Institution, Washington, D.C.

Lillard, Jeremiah B. and William K. Purves

1936 *The Archaeology of the Deer Creek-Cosumnes area, Sacramento, Co., California.* Sacramento Junior College, Department of Anthropology Bulletin 1, Sacramento, CA.

Lillard, Jeremiah B., Robert F. Heizer and Franklin Fenenga

1939 *An Introduction to the Archaeology of Central California.* Sacramento Junior College Department of Anthropology Bulletin 2, Sacramento, CA.

Milliken, Randall

1983 The Spatial Organization of Human Population on Central California's San Francisco Peninsula at the Spanish Arrival. Masters thesis, Department of Anthropology, Sonoma State University, Rohnert Park, CA.

1995 *A Time of Little Choice: The Disintegration of Tribal Culture in the San Francisco Bay Area 1769-1810*. Ballena Press Anthropological Papers No. 43, Menlo Park, CA.

Milliken, Randall and James A. Bennyhoff

1993 Temporal Changes in Beads as Prehistoric Grave Goods. In *There Grows a Green Tree: Papers in Honor of David A. Fredrickson*, edited by G. White, P. Mikkelsen, W. R. Hildebrandt and M. E. Basgall. vol. 11. Center for Archaeological Research at Davis.

Moratto, Michael J.

1984. *California Archaeology*. Academic Press, New York.

Nelson, Nels C.

1909 Shellmounds of the San Francisco Bay Area Region. *University of California Publications in American Archaeology and Ethnology* 7(4):310-356. Berkeley.

Northwest Information Center of the California Historical Resources Information System

2007 Cultural Resource Record Search (File No. 07-0362). Requested by William Self Associates, Inc., Orinda, California, September 6, 2007.

2008 Cultural Resource Record Search (File No. 07-1299). Requested by William Self Associates, Inc., Orinda, California, March 12, 2008.

2008 Cultural Resource Record Search (File No. 07-1326). Requested by William Self Associates, Inc., Orinda, California, March 14, 2008.

Parker, Sandra

1985 Predictive Modelling of Site Settlement Systems Using Multivariate Logistics. In *For Concordance in Archaeological Analysis: Bridging Data Structure, Quantitative Technique and Theory*, edited by Christopher Carr, pp. 173-205. Waveland Press Inc., Illinois.

Ragir, Sonia

1972 The Early Horizon in Central California Prehistory. *Contributions of the University of California Archaeological Research Facility* 15, Berkeley.

Savage, S. H.

1989 Late Archaic Landscapes: A Geographic Information Systems Approach to the Late Archaic Landscape of the Savannah River Valley, Georgia, and South Carolina, Anthropological Studies No. 8, prepared by the University of South Carolina South Carolinal Institute of Archaeology and Anthropology.

Sawyer, Izaak, Laurie Pfeiffer, Karen Rasmussen, and Judy Berryman

2000 Archaeological Survey along Onshore Portions of the Global West Fiber Optic Cable Project. On file at the Northwest Information Center, Sonoma State University, Rohnert Park, CA.

Schenck, W. Egbert., and E. J. Dawson

1929 Archaeology of the Northern San Joaquin Valley. *University of California Publications in American Archaeology* and Ethnology 25 (4): 289-413. Berkeley.

Shipley, William F.

1978. Native Languages of California. In *Handbook of North American Indians, California* Volume 8, Robert F. Heizer editor, pp. 80-90. Smithsonian Institution, Washington, D.C.

Shoup, Laurence, Randall Milliken, and Alan Brown.

1995 Inigo of Ranchero Posolmi: The Life and Times of a Mission Indian and his Land. Archaeological/Historical Consultants, Oakland, CA.

Strother, Eric, Drew Bailey and Melinda Hickman

2008 Cultural Resources Assessment Report, Palo Alto Recycled Water Facility Project, Palo Alto, Santa Clara County, California. Prepared for RMC Water and Environment by William Self Associates, Inc., Orinda, CA.

Van Zandt and Robert Cartier

1986 Archaeological Site Record for CA-SCL-600. On file at the Northwest Information Center, Sonoma State University, Rohnert Park, CA.

Warren, Robert E.

1990 Predictive Modeling in Archaeology: A Primer. In *Interpreting Space: GIS and Archaeology*, edited by K. Allen, S. Green and E. Zubrow, pp. 90-111. Taylor and Francis, London.

Wiberg, Randy S.

1997 *Archaeological Investigations at Site CA-ALA-42, Alameda County, California: Final Report*. Coyote Press, Salinas, CA.

Willey, Gordon R. and Philip Phillips

1958 *Method and Theory in American Archaeology*. University of Chicago Press, Chicago, IL.

William F. Jones, Inc.

1980 Report of May 27, 1980 to the Carl Holvick company, re Smith Property Office Building (now 3805 E. Bayshore Road), Palo Alto, California. File no. 180052.1. City of Palo Alto file no. 1-13.

William Self Associates, Inc. (WSA)

2007 Palo Alto Recycled Water Project Additional Facilities (letter report). Report prepared for RMC Water and Environment. Report prepared by William Self Associates, Inc., Orinda, CA.

Appendix A

NAHC Correspondence

STATE OF CALIFORNIA Edmund G. Brown, Jr., Governor

NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Blvd.
West Sacramento, CA 95691
(916) 373-3710
Fax (916) 373-5471

November 5, 2014

Allen Estes
WILLIAM SELF ASSOCIATES
61d Avenida de Orinda
Orinda aCA 94563

By: FAX: 925-254-3553

3 Pages

Re: Palo Alto Recycled Water project, Santa Clara County

Mr. Estes

A record search of the sacred land file has failed to indicate the presence of Native American cultural resources in the immediate project area. The absence of specific site information in the sacred lands file does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Enclosed is a list of Native Americans individuals/organizations who may have knowledge of cultural resources in the project area. The Commission makes no recommendation or preference of a single individual, or group over another. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated, if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe or group. If a response has not been received within two weeks of notification, the Commission 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 me at (916) 373-3713.

Sincerely,

Katy Wharton for

Debbie Pilas-Treadway
Environmental Specialist III

Native American Contacts
Santa Clara County
November 7, 2014

Jakki Kehl
720 North 2nd Street
Patterson , CA 95363
jakkikehl@gmail.com
510-701-3975
Ohlone/Costanoan

Katherine Erolinda Perez
P.O. Box 717
Linden , CA 95236
canutes@verizon.net
(209) 887-3415
Ohlone/Costanoan
Northern Valley Yokuts
Bay Miwok

Linda G. Yamane
1585 Mira Mar Ave
Seaside , CA 93955
rumsien123@yahoo.com
(831) 394-5915
Ohlone/Costanaon

Amah MutsunTribal Band
Valentin Lopez, Chairperson
P.O. Box 5272
Galt , CA 95632
vlopez@amahmutsun.org
(916) 743-5833
Ohlone/Costanoan
Northern Valley Yokuts

Amah MutsunTribal Band
Edward Ketchum
35867 Yosemite Ave
Davis , CA 95616
aerieways@aol.com
Ohlone/Costanoan
Northern Valley Yokuts

Amah MutsunTribal Band of Mission San Juan Bautista
Irene Zwierlein, Chairperson
789 Canada Road
Woodside , CA 94062
amahmutsuntribal@gmail.com
(650) 400-4806 Cell
(650) 332-1526 Fax
Ohlone/Costanoan

Amah MutsunTribal Band of Mission San Juan Bautista
Michelle Zimmer
789 Canada Road
Woodside , CA 94062
amahmutsuntribal@gmail.com
(650) 851-7747 Home
(650) 332-1526 Fax
Ohlone/Costanoan

Indian Canyon Mutsun Band of Costanoan
Ann Marie Sayers, Chairperson
P.O. Box 28
Hollister , CA 95024
ams@indiancanyon.org
(831) 637-4238
Ohlone/Costanoan

Muwekma Ohlone Indian Tribe of the SF Bay Area
Rosemary Cambra, Chairperson
P.O. Box 360791
Milpitas , CA 95036
muwekma@muwekma.org
(408) 205-9714
(510) 581-5194
Ohlone / Costanoan

The Ohlone Indian Tribe
Andrew Galvan
P.O. Box 3152
Fremont , CA 94539
chochenyo@AOL.com
(510) 882-0527 Cell
(510) 687-9393 Fax
Ohlone/Costanoan
Bay Miwok
Plains Miwok
Patwin

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 for the proposed Palo Alto Recycled Water project, Santa Clara County

Native American Contacts
Santa Clara County
November 7, 2014

Trina Marine Ruano Family Ramona Garibay, Representative 30940 Watkins Street Union City , CA 94587 soaprootmo@comcast.net (510) 972-0645	Ohlone/Costanoan Bay Miwok Plains Miwok Patwin

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 for the proposed Palo Alto Recycled Water project, Santa Clara County

Consultants in Archaeology and Historic Preservation

November 18, 2014

Jakki Kehl
720 North 2nd Street
Patterson, CA 95363

Re: Proposed Palo Alto Recycled Water Project, Santa Clara County

Dear Ms. Kehl,

William Self Associates, Inc. (WSA) has been contracted by RMC to conduct a cultural resources assessment for the Palo Alto Regional Water Quality Control Plant's expansion of its regional recycled water system in the City of Palo Alto. The project area is located within an unsectioned portion of Township 6S, Range 2W, in Santa Clara County, as depicted on the attached map.

A record search of the sacred land file conducted by the Native American Heritage Commission (NAHC) failed to indicate the presence of Native American cultural resources in the immediate project area. However, the NAHC provided your name as a person who may have knowledge of such resources in the project area.

WSA would appreciate receiving any comments you may have regarding cultural resources or sacred sites issues within the immediate project area. We will make sure the comments are provided as part of the environmental assessment of the project.

Thanks for your assistance.

Sincerely,

James M. Allan, Ph.D., RPA
Vice-President, Principal Project Director

Attachment

P.O. Box 2192
61d Avenida de Orinda
Orinda CA 94563

William Self Associates, Inc.

Phone: 925-253-9070
Fax: 925-254-3553
Email:jallan@williamselfassoc.com

Appendix B

Survey Photographs

Photo 1: View NE along East Meadow Dr. from the intersection wtih Middlefield Rd.

Photo 2: View SW along Page Mill Dr. south of El Camino Real.

Photo 3: View SW along Barron Creek at the Cowper Street crossing.

Photo 4: View NE along Matadero Creek at the Cowper Street crossing.

Photo 5: View NE along Matadero Creek at the Hillview Ave. crossing.

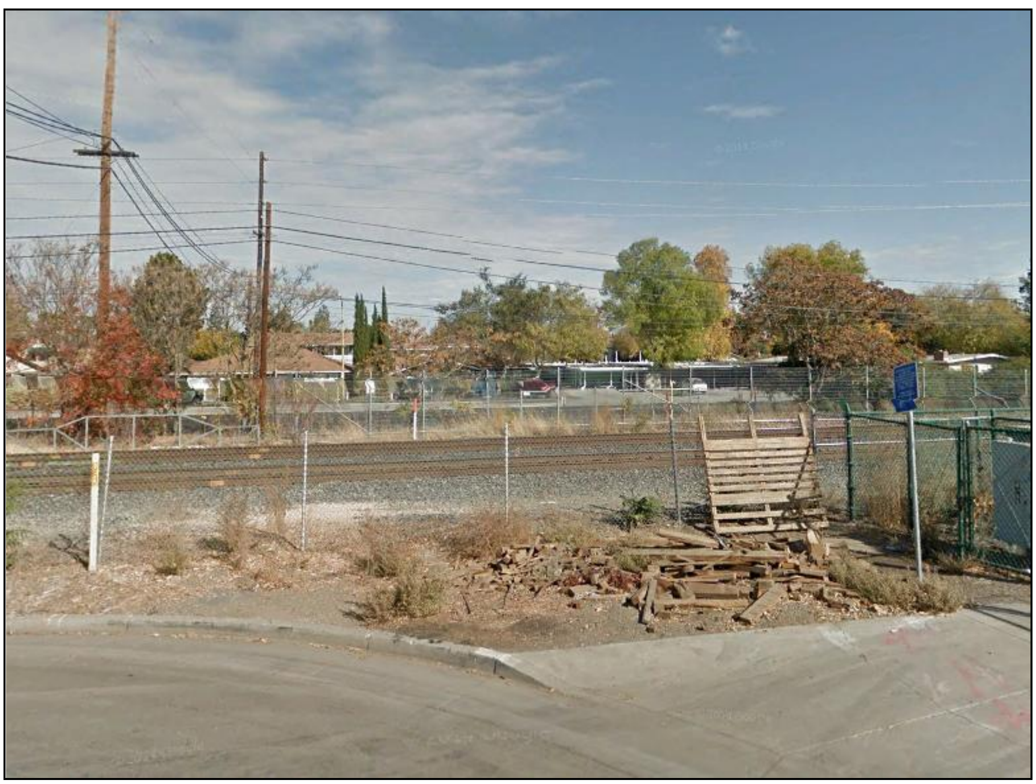


Photo 6: View N across Caltrain tracks from the north end Page Mill Dr.

Photo 7: View NW along El Camino Real from the intersection with Hansen Way.

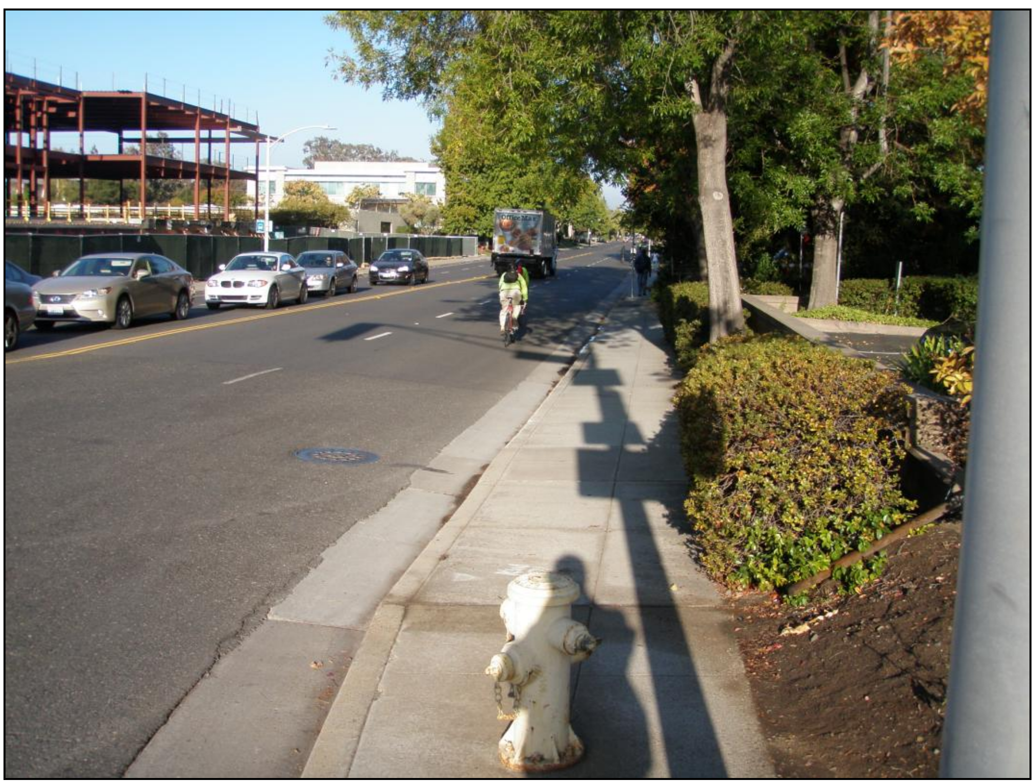


Photo 8: View W along Hanover toward the intersection with California Ave.

Photo 9: View E along Porter Drive from Page Mill Rd.

Photo 10: View NE along Arastradero Rd. from Miranda Ave.

Photo 11: View NE along lateral from Deer Creek Drive to Hillview Ave.

Photo 12: View SW along Adobe Creek at the Middlefield Rd. crossing.

Photo 13: View SW along Barron Creek at the Miranda Avenue crossing.

Photo 14: View WE along Middlefield Rd. from East Meadow Drive.

Photo 15: View W along Fabian Way from East Meadow Drive.

Photo 16: View NE along Hansen Way.

Photo 17: View NE along Page Mill Rd. -- proposed booster pump station location (arrow).

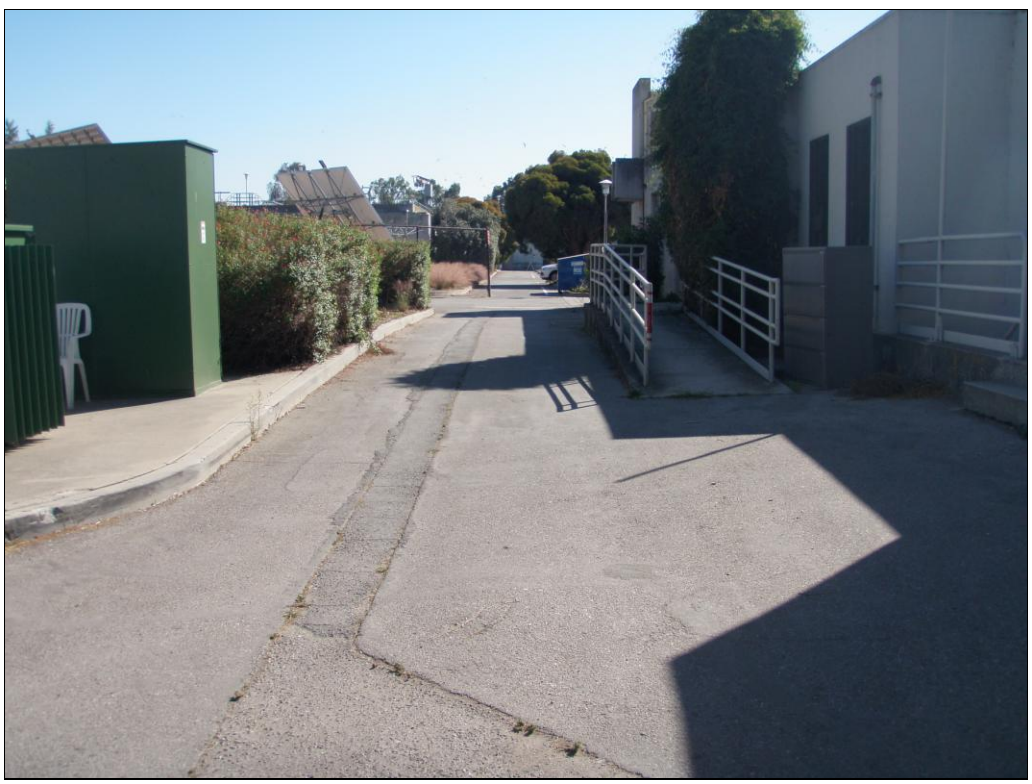


Photo 18: View SE inside the RWQCP at one possible location for tanks.

Photo 19: View SE inside the RWQCP at another possible location for tanks.