RESOLUTION NO. 2016-105

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF ROHNERT PARK APPROVING AN ADDENDUM TO THE UNIVERSITY DISTRICT SPECIFIC PLAN FINAL ENVIRONMENTAL IMPACT REPORT

WHEREAS, in 2006, The City of Rohnert Park (City) prepared and certified an Environmental Impact Report (2006 Program EIR) that analyzed the impacts of the University District Specific Plan; and

WHEREAS, the City adopted the findings required by the California Environmental Quality Act (CEQA) and approved the project in conjunction with approval of the University District Specific Plan that same year; and

WHEREAS, in 2014, the applicant proposed changes to the Specific Plan, which were analyzed in a CEQA addendum (2014 Addendum); and

WHEREAS, the features proposed in 2014 were to occur on the same site approved in the 2006 Program EIR, and the analysis concluded that the amended project would not result in a new or more severe impacts than were analyzed in the 2006 Program EIR; and

WHEREAS, the 2006 Program EIR, and the 2014 Addendum included a description and some analysis of a new offsite water supply tank, access road, and associated infrastructure; and

WHEREAS, the City is considered the lead agency for the Specific Plan, and is responsible for approving construction of the new offsite water supply tank, access road, and associated infrastructure (Water Tank #8 Project) (the "Project") per CEQA guidelines Section 15367; and

WHEREAS, the City has prepared the University District Specific Plan CEQA Addendum – Evaluation of the Water Tank #8 Project (2016 EIR Addendum) in order to make minor technical revisions or additions to the Program EIR to address the Project; and

WHEREAS, the 2016 Addendum has concluded that the Water Tank #8 Project does not result in any changes in the original project that would result in a new or substantially more severe impact than disclosed in the 2006 Program EIR and the 2014 Addendum and that there is no new information that would require additional environmental analysis under CEQA Guidelines section 15162; and

WHEREAS, the City Council reviewed and considered the information contained in the 2016 EIR Addendum for the Project.

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of Rohnert Park makes the following findings, determinations and recommendations with respect to the 2016 EIR Addendum:

1. The Council has independently reviewed, analyzed and considered the 2006 Program EIR, the 2014 Addendum, and 2016 EIR Addendum and all written documentation on the proposed Project; and

2. The 2016 EIR Addendum was prepared and reviewed in compliance with the provisions of CEQA and the CEQA Guidelines; and

3. The information and analysis contained in the 2016 EIR Addendum reflects the City's independent judgment as to the environmental consequences of the proposed Project; and

4. The 2016 EIR Addendum identifies that the revisions to the project analysis examined in the 2006 Program EIR due to the Project were examined pursuant to CEQA Guidelines Section 15162 and the conclusion of the analysis is that the changes would have no new or substantially more severe impact and that there is no new information that would require additional environmental review pursuant to Section 15162. All of the pertinent mitigation measures from the 2006 Program EIR continue to apply to the Project and no new effects could occur and no new mitigation measures are required.

BE IT FURTHER RESOLVED that the City Council of the City of Rohnert Park does hereby approve the 2016 EIR Addendum as provided at **Exhibit A,** in its entirety, which is attached hereto and incorporated by this reference.

DULY AND REGULARLY ADOPTED on this 8th day of November, 2016.

CITY OF ROHNERT PARK

Gina Belforte, Mayor

ATTEST:

Caitlin Saldanha

Caitlin Saldanha, Deputy City Clerk

Attachment: Exhibit A

AHANOTU: Aye **CALLINAN:** Aye **STAFFORD:** Aye **MACKENZIE:** Aye **BELFORTE:** Aye
AYES: (5) **NOES:** (0) **ABSENT:** (0) **ABSTAIN:** (0)

Attachment 3

Exhibit A to Resolution 2016-105

UNIVERSITY DISTRICT SPECIFIC PLAN CEQA ADDENDUM

Evaluation of the University District Water Tank (City Tank #8) Project

Prepared for:

City of Rohnert Park
130 Avram Avenue
Rohnert Park, CA 94928
Contact: Vanessa Marin, Senior Engineering Technician

Prepared by:

DUDEK
853 Lincoln Way, Suite 208
Auburn, California 95603

OCTOBER 2016

Printed on 30% post-consumer recycled material.

Contents

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I. BACKGROUND

Project Title: University District Water Tank (City Tank #8)

Project Location: The proposed project site is located in unincorporated Sonoma County at 6626 Petaluma Hill Road (Assessor's Parcel Number (APN) 047-132-038).

Lead Agency Name and Address: City of Rohnert Park
Development Services
130 Avram Avenue
Rohnert Park, CA 94928-2486

Contact Person and Phone Number: Vanessa Marin
Senior Engineering Technician
(707) 588-2251

Project Applicant's / Sponsor's Name and Address: City of Rohnert Park

Background: In 2006, the City of Rohnert Park (the City) prepared and certified a Program Environmental Impact Report (the "2006 Program EIR") that analyzed the impacts of the University District Specific Plan (the "Specific Plan"). The City adopted the findings required by the California Environmental Quality Act (CEQA) and approved the 2006 Project in conjunction with approval of the University District Specific Plan that same year. In 2014, changes to the Specific Plan were proposed, which were analyzed in a CEQA addendum, *Evaluation of Proposed Amendments to the University District Specific Plan* (the "2014 Addendum"). The features in the 2014 Project were to occur on the same site approved in the Specific Plan, and the analysis concluded that the amended project would not result in new or more severe impacts than were analyzed in the 2006 Program EIR. The amendments included different locations for specific project features, changes to development acreage and land use densities, changes to park sizes and locations, an increase to the size of a stormwater detention basin, and new bike lanes. The City approved the 2014 Addendum and amended the Specific Plan to include these changes.

Both the 2006 Program EIR and the 2014 Addendum described and analyzed a new offsite water supply tank, access road, and associated infrastructure. The City is now proposing to construct the offsite water supply tank and ancillary features (the "Water Tank Project", "Proposed Project", or "Project"). The Amended and Restated Development Agreement between the City of Rohnert Park and University District LLC and Vast Oak Properties L.P. (approved on April 8, 2014), requires the developer of the Specific Plan to construct and install the new water supply tank and storage infrastructure to serve the Specific Plan area. The Development Agreement also includes provisions under which the City may construct the water tank. The City is considering a Second Amendment to the Amended and Restated Development Agreement, under which the

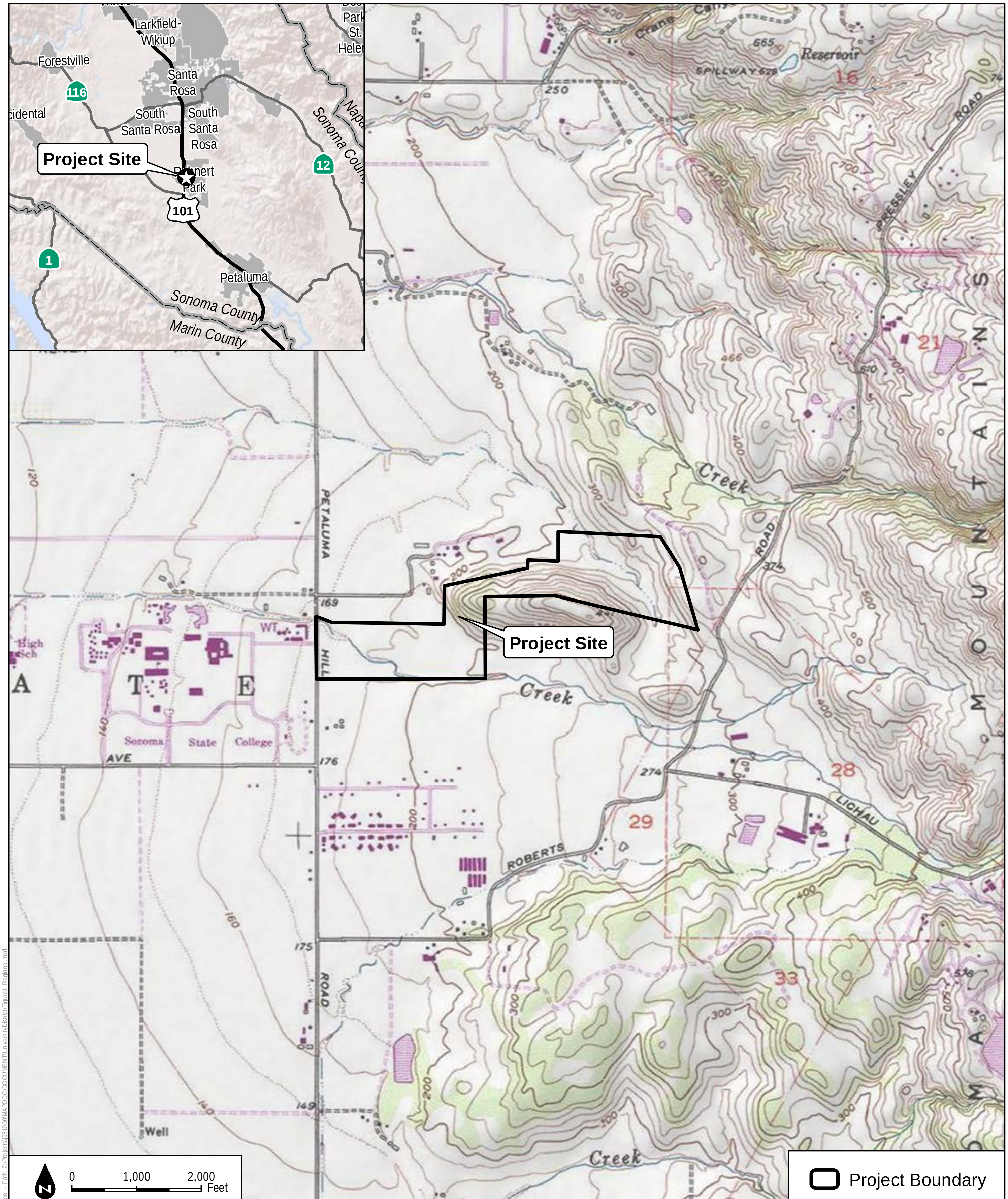
City would construct the proposed water tank and improvements which include a new welded steel water storage tank and separate transmission mains to deliver water to and from the storage tank to the new development at the appropriate system pressure. This Addendum analyzes the revisions to the 2006 Program EIR as a result of the additional project-level details for the Project.

II. PROJECT DESCRIPTION

As shown on **Figure 1 Regional Location Map** and **Figure 2 Aerial Photo Map**, the Project site is located at 6626 Petaluma Hill Road (APN 047-132-038) in unincorporated Sonoma County. The Project would consist of the construction of an 833,000 to 946,000-gallon welded steel water storage tank with overflow capacity on the property, known as the Anderson 128 parcel. The Anderson 128 parcel is currently owned by developers' of the Specific Plan and has been offered for dedication to the City of Rohnert Park. The parcel is also subject to a Williamson Act contract. For the purpose of constructing the Project, the City would accept the offer of dedication, which would void the Williamson Act contract. To do so, the City must complete necessary CEQA documents and advise and receive comments from the Department of Conservation and the County of its intent to acquire the property (GC 51291, 51292, 51293, and 51295).

As shown on **Figure 3 Proposed Improvements**, the water storage tank would be located approximately 2,500 feet east of Petaluma Hill Road, on the southwest side of a hill, with a bottom elevation of approximately 254 feet. The tank would be painted a dark green color and would have a diameter of 80 feet and a sidewall height of approximately 28 feet. The sidewall would transition to a shallow-sloped roof. The overall height of the tank would be approximately 36 feet with all appurtenances.

The tank pad would be excavated from the hillside and situated completely in cut slope. A portion of the slope behind the tank would be supported by a retaining wall. The tank would have a concrete ring foundation for seismic anchorage. Security fencing would be installed around the full perimeter of the pad area. Motion activated lighting and security cameras would be installed onsite, as recommended by the U.S. Department of Homeland Security. The tank site would be accessed by a 12-foot-wide gravel access road. The access road would be situated as far north as practicable to the property line extending east-west from Petaluma Hill road to the base of the tank site. Surrounding the tank site, the access road would be paved and would extend down the hill from the tank site approximately 500 feet towards Petaluma Hill Road. Approximately 60 feet of the access road at the entrance to Petaluma Hill Road would also be paved. The total of all new onsite asphalt paved areas along the access road would be approximately 14,000 square feet.



SOURCE: USGS 7.5-Minute Series Cotati Quadrangle; Sonoma County GIS (2016)

FIGURE 1

Regional Map

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Tank 8 / Anderson 53 Project

City of Rohnert Park

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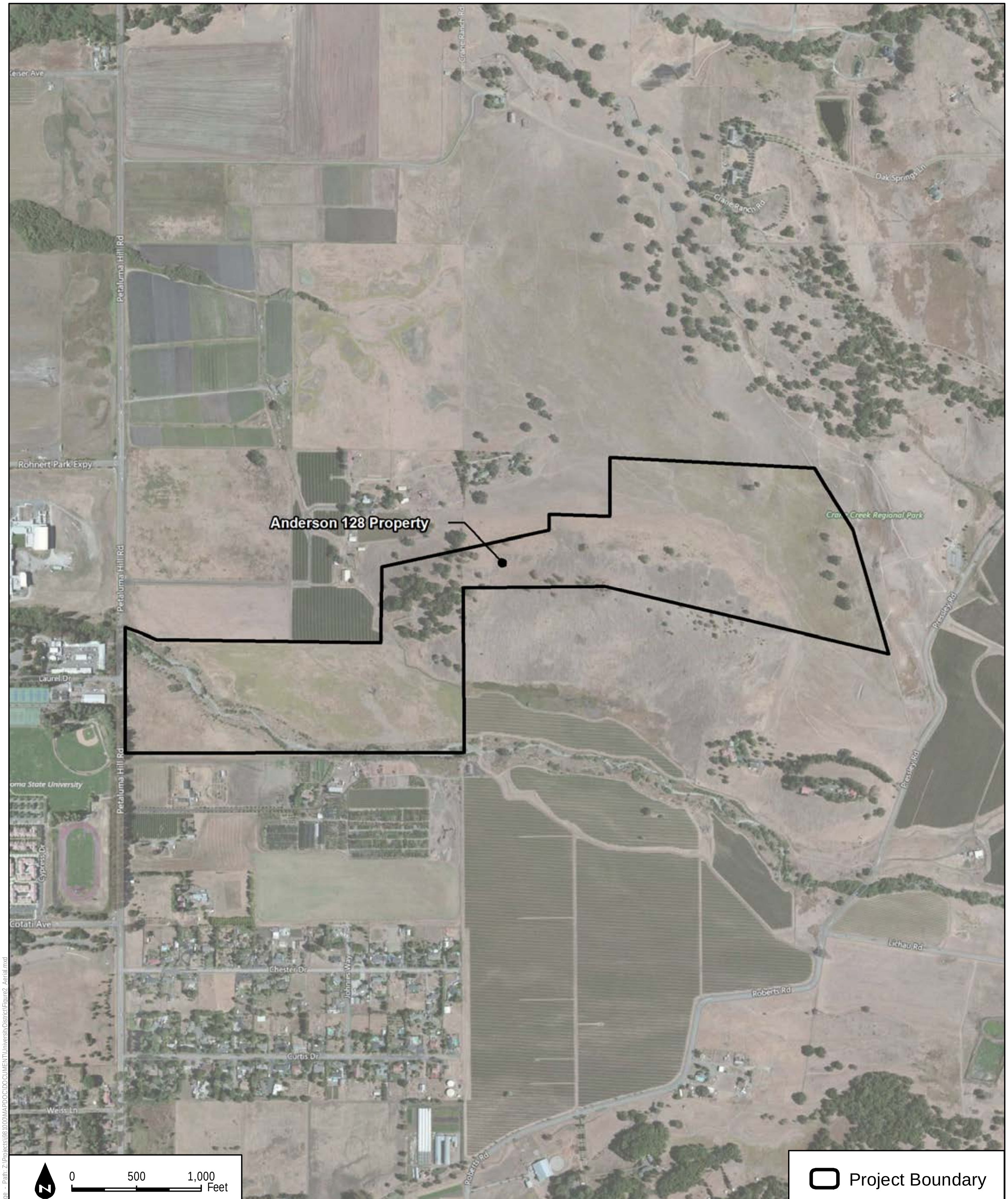

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SOURCE: Bing Maps (2016); Sonoma County GIS (2016)

FIGURE 2
Project Site

Tank 8 / Anderson 53 Project

City of Rohnert Park

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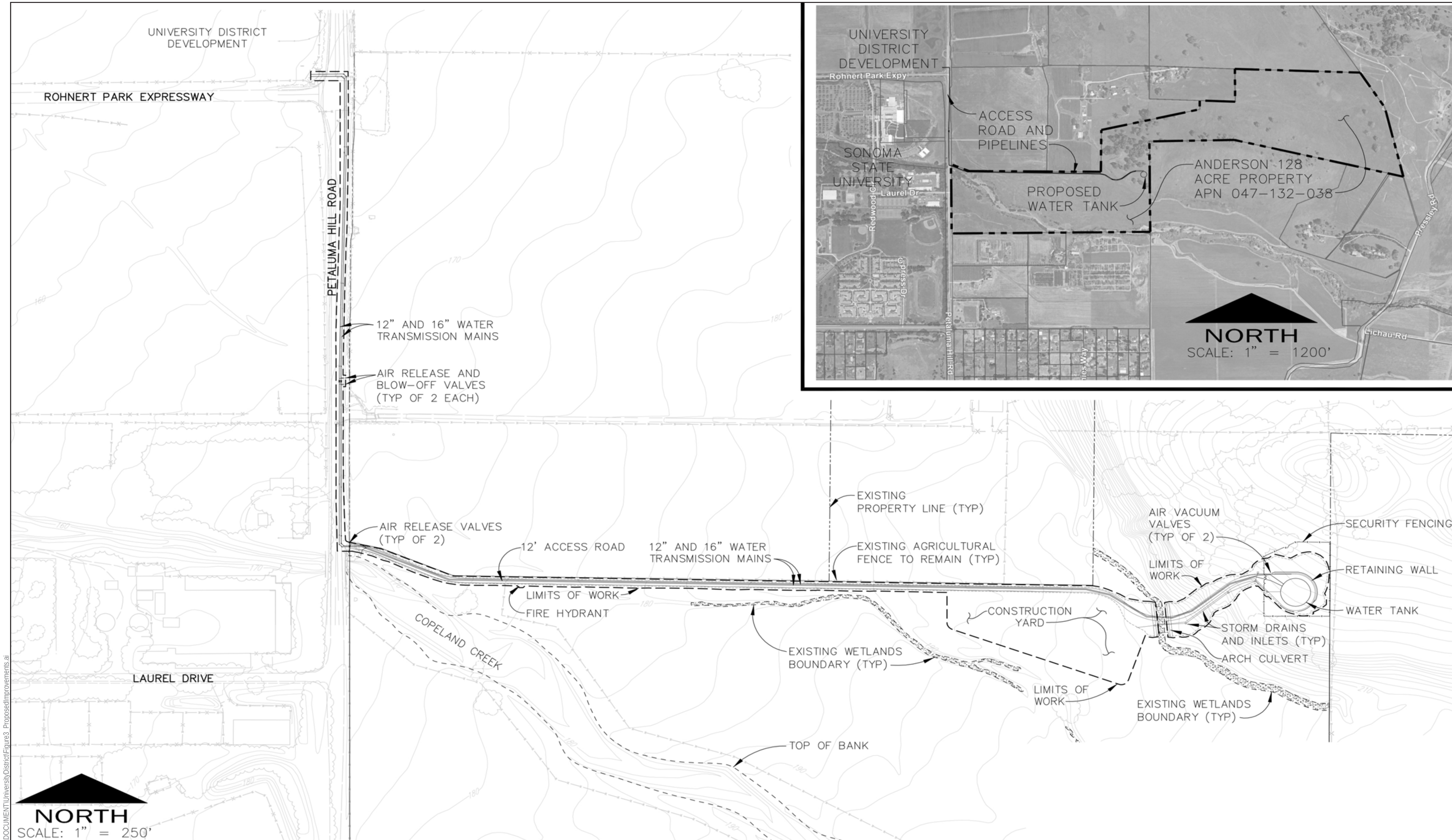

SOURCE: Brelje & Race Consulting (2016)

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FIGURE 3
Proposed Improvements

Tank 8 / Anderson 53 Project

City of Rohnert Park

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A new barbed wire fence and entrance gate would be constructed approximately 40 feet east of Petaluma Hill Road. None of the existing agricultural fencing is proposed for removal or replacement with implementation of the Project, with the exception of the existing fence and gates at the entrance to the site, and a section of fence and gates approximately 400 feet east of Petaluma Hill Road that crosses the proposed access road.

The Project proposes to construct a metal multi-plate arch culvert bridge to span approximately 35 feet where the access road crosses over a tributary to Copeland Creek. Placement of the arch culvert would be field verified and adjusted by the project biologist as required to avoid disturbance of the wetlands. The metal arch culvert would be supported by two 13.5 foot wide concrete spread footings founded approximately 5 feet below the existing ground surface on either side of the wetland area. Approximately 7 feet of fill would be placed over the top of the arch culvert, which would be retained on either end by precast concrete headwalls. The access road crossing the arch culvert would be bordered by metal beam guardrails on either side. A temporary railcar type bridge would span the wetland area for construction access to the eastern side of the site prior to completion of the permanent arch culvert. The temporary bridge would be installed and removed without construction equipment entering the wetland area.

Earthwork for construction of the onsite improvements is expected to be balanced, and approximately 10,000 cubic yards of earth moving activities would take place with final cuts and fills of up to 16 feet high. No import of additional material or off-haul of the excavated materials is expected. Gravel and asphalt for surfacing would need to be imported.

Two separate water transmission mains would service the planned water storage tank. A new 12-inch diameter water transmission main would be extended from the termination of an existing transmission main at the intersection of the Rohnert Park Expressway and Petaluma Hill Road, and would deliver water to the new water storage tank. A new 16-inch transmission main would carry water from the new storage tank back to the termination of an existing 16-inch water main, also located at the intersection of the Rohnert Park Expressway and Petaluma Hill Road, near the entrance to the University District development. The two water mains would be installed parallel within a joint trench in the northbound lanes of Petaluma Hill Road and would travel approximately 1,800 feet south to the new tank access road. The mains would also run another approximately 2,500 feet up the tank access road and within the fill over the arch culvert before tying into the tank inlet and outlet piping. The total length of each pipeline would be approximately 4,300 feet. Appurtenant facilities would include gate and butterfly valves (per City Standard 877 and 878), a fire hydrant (per City Standard 857), blow-offs (per City Standard 861), and air and vacuum/air release valves (per City Standard 883). Water piping materials would be polyvinyl chloride (PVC) and ductile iron (DIP). The limits of work for the access road and transmission mains both on-site and in Petaluma Hill Road is 25 feet to 30 feet, as shown on

Figure 3. The northbound lane of Petaluma Hill Road would be fully reconstructed and restriped after installation of new pipelines.

On-site drainage improvements around the tank site would include precast concrete drop inlets, 18-inch reinforced concrete piping (RCP), valley gutters, and ditches necessary for collecting and conveying localized on-site rainfall and emergency tank overflow safely down the hillside and across the arch culvert to a suitable location at the base of the hill. There may also be a need to implement permanent storm water treatment elements as part of the site's drainage improvements in accordance with the requirements of the City's Stormwater Permit and the most current edition of the local Low Impact Development Manual.

A Storm Water Pollution Prevention Plan (SWPPP) prepared by a Qualified SWPPP Developer (QSD) would be provided and implemented by the Contractor prior to and during construction as required by the Construction General Permit Order 2009-0009-DWQ. The SWPPP would provide the selection and implementation of specific Best Management Practices (BMPs) necessary to eliminate or reduce the discharge of pollutants due to construction, but would likely include a stabilized construction entrance/exit, straw wattles, silt fencing, sediment traps, sediment bags, seeding, mulching, soil stabilization, and other erosion, sediment, tracking, wind erosion, and non-storm water control measures.

Prior to work and in compliance with 2006 Program EIR Mitigation Measure BIO-5a, orange construction fencing would be installed along the environmentally sensitive wetland areas adjacent to construction as indicated on the project plans, and at the direction of the project biologist. In addition to the orange construction fencing, silt fencing and straw wattles would be installed along the uphill slope of the wetland area. The orange construction fencing would be removed upon the completion of construction, and the silt fencing and straw wattles would remain in place until vegetation has been re-established.

III. ENVIRONMENTAL SETTING

Project Site

The 128-acre water tank site is undeveloped grazing land. The main channel of Copeland Creek runs east-west through the property and a tributary to Copeland Creek runs north-south at the base of the hill approximately 2,500 feet east of Petaluma Hill Road.

Project Site Vicinity

Some of the development projects identified in the 2006 Program EIR as occurring in the future cumulative condition have since been developed. Specifically, construction of the Green Music Center was completed in early 2013, and the Graton Rancheria completed the Graton Resort and

Casino in November 2013. Both facilities are operational. The 2006 Program EIR took into consideration the cumulative environmental impacts associated with these development projects. The 2014 Addendum considered the updates that had been made since 2006 and determined that no substantial development had occurred in the area that was not identified as foreseeable in the 2006 Program EIR as a part of the cumulative impact analysis.

IV. USE OF AN ADDENDUM

Pursuant to Section 15164 of the State CEQA Guidelines, an addendum to a certified EIR may be prepared if only minor technical changes or additions are necessary and none of the conditions described in State CEQA Guidelines Section 15162 that call for preparation of a subsequent EIR have occurred. Under Section 15162, no subsequent EIR would need to be prepared unless the lead agency determines, on the basis of substantial evidence, one or more of the following:

- Substantial changes are proposed in the project which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;
- Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR or Negative Declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or
- New information of substantial importance, which was not known and could not have been known, at the time the previous EIR or Negative Declaration was prepared shows any of the following:
    - The project will have one or more significant effects not discussed in the previous EIR or negative declaration;
    - Significant effects previously discussed will be substantially more severe than shown in the previous EIR or negative declaration;
    - Mitigation measures or alternatives previously found not to be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measures or alternatives; or
    - Mitigation or alternatives which are considerably different from those analyzed in the previous EIR or negative declaration would substantially reduce one or more

significant effects on the environment, but the project proponents decline to adopt the mitigation or alternative.

Section 15164 of the State CEQA Guidelines states that a CEQA lead agency may prepare an addendum to a previously certified EIR if some changes or additions are necessary but none of the conditions described above for Section 15162 calling for preparation of an subsequent EIR have occurred. Because the 2006 Program EIR previously evaluated development of the University District Specific Plan area including the construction of the water tank, this Addendum evaluates whether any of the conditions requiring a subsequent EIR exist, and/or whether there are any minor clarifications or revisions to the 2006 Program EIR that would be needed in order for the City of Rohnert Park to rely on the2006 Program EIR. The following sections of this Addendum document the information and analysis contained in the 2006 Program EIR and the 2014 Addendum and relevant information that has become available since the 2006 Program EIR and the 2014 Addendum was prepared.

No Substantial Changes

The 2006 Program EIR was prepared under the direction of the City and certified in accordance with the requirements of CEQA and the CEQA Guidelines. The EIR examined the potential environmental effects of the Specific Plan, which included an offsite potable water tank. In the 2006 Program EIR, it was assumed that the Specific Plan would include construction of an 833,000-gallon gravity water tank that would be approximately 30 feet high. The 2006 Program EIR also assumed development of a 15-foot maximum width asphalt-paved access road and noted that soil material excavated during construction of the water tank would be hauled from the site to a suitable disposal site.

The Proposed Project would construct the water tank anticipated in the Specific Plan and analyzed in the 2006 Program EIR. The details of the proposed water tank and associated appurtenances would be substantially similar to those included in the 2006 Program EIR with the following minor differences and adjustments:

- The proposed water tank size would range from 833,000 to 946,000-gallons. The tank would have a sidewall height of approximately 28 feet and the overall height of the tank would be approximately 36 feet with all appurtenances.

- Access to the tank would be provided from a 12-foot-wide gravel access road. The access road would be paved surrounding the tank site and would extend down the hill from the tank site approximately 500 feet towards Petaluma Hill Road. Approximately 60 feet of the access road at the entrance to Petaluma Hill Road would also be paved under the Proposed Project.

- Under the Proposed Project, earthwork for construction of the onsite improvements is expected to be balanced, and no import of additional material or off-haul of the excavated materials is expected.

Although the Project provides additional, updated project and site details regarding the water tank assumed in the 2006 Program EIR, the current proposal is substantially the same project as that assumed and analyzed in the 2006 Program EIR. The 2014 Project did not propose any changes to the water tank component of the Specific Plan.

No New Information

Based on the technical studies completed for this addendum, there is no new information of substantial importance which was not known and could not have been known when the 2006 Program EIR was certified or the 2014 Addendum was approved. The project details evaluated in this Addendum will not result in new significant effects or substantially more severe impacts. Moreover, there are no mitigation measures or alternatives previously found to be infeasible which are now found to be feasible and/or considerably different that would substantially reduce project impacts.

No New Impacts

Based on a review of the details of the Project and site specific technical studies, the Project would not result in any new significant environmental effects which were not disclosed in the 2006 Program EIR or the 2014 Addendum, nor would the project details result in a substantial increase in the severity of the previously identified impacts analyzed in the 2006 Program EIR or the 2014 Addendum.

This Addendum provides additional project-level details that are consistent with the Specific Plan as described in the previous 2006 Program EIR and the 2014 Addendum. All of the pertinent mitigation measures from the 2006 Program EIR continue to apply to the proposed Water Tank Project. This analysis concludes that the Project would have no new or substantially more severe impact. Thus, the City has determined that an additional Addendum to the 2006 Program EIR is the appropriate environmental review document. Given this finding, this Addendum has been prepared in accordance with the California environmental Quality Act (CEQA) Section 15164.

The analysis included in this Addendum and the attached technical studies provide evidence in support of these conclusions, including evaluation of impacts and mitigation measures identified in the 2006 Program EIR and 2014 Addendum and their applicability to the Project.

V. ENVIRONMENTAL REVIEW

Impact Analysis

The following summarizes the findings of the 2006 Program EIR and 2014 Addendum. The 2006 Program EIR evaluated aesthetics, agricultural resources, land use and planning, air quality, biological resources, cultural resources, geology and seismicity, hazards and hazardous materials, noise, population and housing, public services, transportation and traffic, utilities and service systems, and water resources. This Addendum evaluates the potential impacts of the project-level details of the Water Tank Project in each of these categories. Mitigation Measures from the 2006 Program EIR that are applicable to the Project are included this Addendum. All Mitigation Measures from the 2006 Program EIR and their applicability to the water tank project are summarized in **Table 1 Summary of Impacts and Mitigation Measures,** attached at the end of this Addendum.

Aesthetics

2006 Program EIR Findings

The 2006 Program EIR concluded that project development would result in impacts on views of and across the Project site and an increase in night-time lighting that would be reduced to a less than significant level by mitigation measures identified in the 2006 Program EIR and by implementation through specific plan design of General Plan policies. The 2006 Program EIR found that construction of the offsite potable water tank would be unlikely to be noticeable to viewers on Petaluma Hill Road, the nearest viewpoint, and concluded that visual impacts related to the construction for the offsite water tank would be less than significant.

2014 Addendum Findings

The 2014 Project did not propose changes related to the potable water tank included in the Specific Plan. The 2014 Addendum concluded that the 2014 Project would not result in any new significant impacts nor would it result in a substantial increase in the severity of the visual and aesthetic impacts previously identified for the Specific Plan in the 2006 Program EIR. All aesthetics and visual impacts of the 2014 Project were found to be the same or less than the 2006 Project, and would be mitigated to a less than significant level with the incorporation of mitigation previously identified in the 2006 Program EIR. No new aesthetic impacts or a substantial increase in the severity of the prior visual or aesthetic impacts would occur under the 2014 Project.

Analysis of Proposed Project

For the proposed Water Tank Project, a visual representation of the proposed water tank, access road, arch culvert, and site security fencing was produced by Brelje & Race (refer to Visual Analysis included as Appendix A to this Addendum). The prepared model provides views of the proposed improvements from a number of locations surrounding the site. The locations presented are identified on Figure 1 in the Visual Analysis Index (refer to Appendix A of this Addendum). The Visual Analysis provides a picture of the existing site and a 3D model are presented from the following locations:

- An Overall Aerial View of the Proposed Tank Site (Appendix A, Figure 2)
- Intersection of Petaluma Hill Road and Rohnert Park Expressway (Appendix A, Figure 3)
- Petaluma Hill Road near Access Road Entrance (Appendix A, Figure 4)
- Intersection of Petaluma Hill Road and Laurel Drive (Appendix A, Figure 5)
- Roberts Ranch Road (Appendix A, Figure 6)

The model shows that the proposed improvements would be clearly visible from certain portions of Petaluma Hill Road and Roberts Ranch Road. Views from Petaluma Hill Road are primarily confined to the stretch of roadway between Rohnert Park Expressway and East Cotati Avenue.

However, views of the proposed improvements are greatly filtered by mature trees and are periodically blocked from view by intervening rural development and vegetation along Copeland Creek, as previously discussed in the 2006 Program EIR. Considering typical vehicle speeds along Petaluma Hill Road, tree coverage, and topography, views of the tank site would be intermittent, and would generally not be particularly noticeable.

The proposed water tank location is located primarily in cut, and is lower than the surrounding hillsides. In all locations, the tank site is broken up by a treed foothill backdrop. As discussed in the Visual Analysis, the tank's proposed dark green paint color would ensure that it would not be particularly noticeable in relation to the surrounding scattered rural development (Brelje & Race, 2016).

As discussed in the Project Description, the Project would install motion activated lighting as recommended by the U.S. Department of Homeland Security. The closest rural residences are approximately 500 feet away. Implementation of Mitigation Measure AES-5a, which requires new lighting design to be shielded and directed downward in compliance with City of Rohnert Park standards, would ensure that impacts associated with proposed new lighting would be less than significant.

As discussed above and based on the conclusions in the Visual Analysis (Brelje & Race, 2016), proposed Water Tank Project would not result in any new significant impacts nor would it result in a substantial increase in the severity of the visual and aesthetic impacts previously identified in the 2006 Program EIR (the 2014 Addendum did not review the water tank impacts because they were unchanged from the 2006 proposal). All aesthetics and visual impacts of the Project would be the same or less than identified in the 2006 Program EIR, and no new mitigation measures would be required. No new aesthetic impacts or a substantial increase in the severity of the prior visual or aesthetic impacts would occur under the Water Tank Project.

Applicable Mitigation Measures from 2006 Program EIR

Mitigation Measure AES-5a: Require Lighting Design to be Shielded and Directed Downward in Compliance with City of Rohnert Park Standards

Night lighting along the University District Specific Plan streets, parking areas and any public spaces shall be focused downward and/or shielded to avoid glare and point sources of light interfering with the vision of onsite and offsite residents and motorists on local roadways. Night lighting for streets will be required to conform to City standards regarding street lighting. Lighting elements will be required to be recessed within their fixtures to prevent glare. A specialist in lighting design shall be consulted during project design to determine light source locations, light intensities and type of light source.

New lighting levels provided shall be compatible with general illumination levels in existing areas to avoid a noticeable contrast in light emissions, consistent with the need to provide for safety and security. The overall objective would be to establish area lighting that would be adequate for safety and surveillance, but minimize the potential effects on nighttime views from locations around and within the annexation area.

Agricultural Resources, Land Use and Planning

2006 Program EIR Findings

The 2006 Program EIR concluded development of the Specific Plan would not convert prime farmland, unique farmland, or farmland of statewide importance to non-agricultural use, but would convert farmland to urban uses. The 2006 Program EIR also determined that the Williamson Act contract on the water tank site would have to be cancelled and included a mitigation measure to that effect. The 2006 Program EIR concluded development of the Specific Plan would not result in impacts on an existing community, but would result in impacts on vacant and previously farmed lands. Construction of the water tank was found not to interfere with grazing on the water tank site. The 2006 Program EIR also concluded development of the Specific Plan would not conflict with adopted plans and policies for the Specific Plan area, and would be consistent with the General Plan. No conservation plans affecting the site were identified in the 2006 Program EIR and none have been adopted for the site since 2006.

2014 Addendum Findings

While the specific locations of proposed residential and commercial uses changed under the 2014 Project, the 2014 Project did not include any changes associated with the water tank component of the Specific Plan. The 2014 Addendum concluded that the 2014 Project would not result in any new significant impacts nor would it result in a substantial increase in the severity of the agricultural resources or prior land use impacts previously identified for the Specific Plan. All agricultural resources and land use impacts resulting from the 2014 Project would be the same or less than the Specific Plan, and would be mitigated to a less than significant level with the incorporation of mitigation previously identified in the 2006 Program EIR.

Analysis of Proposed Project

The proposed Water Tank Project would not result in any new significant impacts nor would it result in a substantial increase in the severity of any agricultural resources or land use and planning impacts previously identified in the 2006 Program EIR and 2014 Addendum. The Project site is designated Diverse Agriculture in the Sonoma County General Plan and is located within a designated Community Separator. The function of Community Separators lands are to separate cities and other communities, to contain urban development, and to provide city and community identity by providing visual relief from continuous urbanization. Community Separators lands do not affect the underlying land use designations or the allowable land uses. Public infrastructure projects that do not interfere with underlying agricultural uses are consistent with these designations. As concluded in the 2006 Program EIR, construction of the water tank would not interfere with grazing on the proposed water tank property. The owners of the site have a grazing lease with adjacent property owners. The City would continue the grazing lease on the Project site. As described in the 2006 Program EIR, this is consistent with the site's designations as Farmland of Local Importance and Grazing Land. Accordingly, impacts associated with the conversion of the existing land use would remain less than significant.

As previously discussed, portions of the water tank site are subject to a Williamson Act contract. To ensure that construction of the water tank would not conflict with the Williamson Act contract, the 2006 Program EIR included Mitigation Measure AG-3a, which provided for filing notices of non-renewal for Williamson Act contracts. While the Water Tank Project would not involve filing notices of non-renewal, the City's acquisition of the water tank property would result in a cancellation of the Williamson Act contract prior to construction of the water tank and associated improvements.

Pursuant to California Government Code (GC) Section 51295, the City's acquisition of the property would void the Williamson Act contract. However, prior to acquiring the property for purposes of constructing a public improvement, the City must follow several procedures, as outlined in the California GC Section 51291 et seq. Specifically, the City would be required to advise the Department of Conservation and the County of Sonoma of its intent to acquire the property (GC 51291(b)). Findings required under GC Section 51292 are: (a) the location is not based primarily on a consideration of the lower cost of acquiring land in an agricultural preserve; and (b) that there is no other land within or outside the preserve on which it is reasonably feasible to locate the public improvement. Pursuant to GC Section 51292, the City would not have to make these findings if the County approves or agrees to the "location or construction of improvements" (GC 51293(a)).

To ensure that there is no conflict with the existing Williamson Act contract, the Project would be required to implement Mitigation Measure AG-3a from the 2006 Program EIR. While Mitigation Measure AG-3a originally provided for filing a notice of non-renewal for the Williamson Act contract, the measure has been clarified to require cancellation of the Williamson Act contract prior to construction of the water tank. Recognizing that the procedure would slightly differ for cancellation of the Williamson Act contract, the end result (termination of the Williamson Act contract) would be consistent with the intent of the 2006 Program EIR and Mitigation Measure AG-3a. With implementation of Mitigation Measure AG-3a, the impact related to conflicts with Williamson Act contracts would continue to remain less than significant as analyzed in the 2006 Program EIR.

Applicable Mitigation Measures from 2006 Program EIR

Clarified Mitigation Measure AG-3a: Cancellation of Williamson Act Contracts

For parcels on which improvements are proposed, the landowner shall follow ~~file notices of non-renewal~~ <u>the required procedures for cancellation of the Williamson Act contracts</u>. Water tank improvements could be constructed following ~~expiration of the contracts~~ <u>cancellation of the contracts</u>.

Air Quality

2006 Program EIR Findings

The 2006 Program EIR relied on the 1999 Bay Area Air Quality Management District (BAAQMD) CEQA Guidelines for the analysis of the 2006 Project air quality impacts.

The 2006 Program EIR analyzed Criteria Pollutant Emissions resulting from construction and operation of the Specific Plan. Criteria Pollutant Emissions were quantified using URBEMIS (Urban Emissions) 2002, Version 8.7.0. With the implementation of the mitigation measures recommended in the 1999 BAAQMD Guidelines, the 2006 Program EIR determined that air quality impacts due to construction emissions would be less than significant. The 2006 Program

EIR concluded that project-related operational emissions would exceed the thresholds contained in the 1999 BAAQMD Guidelines. While the 2006 Program EIR recommended mitigation measures to mitigate and minimize adverse effects, the 2006 Program EIR determined that emissions from the Specific Plan Project operations would result in a significant and unavoidable air quality impact.

The 2006 Program EIR also provided a carbon monoxide (CO) hotspots analysis, which was conducted using CALINE4 dispersion model as further discussed on pages 3.3-12 and 3.3-13 of the Draft 2006 Program EIR. The 2006 Program EIR included data for CO concentrations at intersections in the vicinity of the Specific Plan. No modeled intersection had a CO concentration that exceeded the Ambient Air Quality Standards (AAQS). Consequently, the impact was determined to be a less than significant impact (Impacts AQ-1, AQ-2, and AQ-3). The 2006 Program EIR provides an analysis of the Specific Plan's potential impact to create odor nuisances (Impact AQ-4). This impact was determined to be less than significant.

The 2006 Program EIR concluded that the 2006 Project would be inconsistent with the 2000 Clean Air Plan due to the growth in vehicle mile traveled (VMT) induced by implementation of the City of Rohnert Park General Plan and the Project. The 2006 Program EIR determined that the inconsistency with the 2000 Clean Air Plan would result in a significant and unavoidable impact as discussed in Impact AQ-5. Pursuant to Public Resources Code 21081 and CEQA Guidelines sections 15091 -15093, the City adopted a Statement of Overriding Considerations for the University District Project (Resolution No. 2006-142 adopted on May 23, 2006). The City concluded that specific economic, legal, social, technological, environmental and other considerations and benefits of the 2006 Project would independently outweigh the significant, adverse impacts identified in the 2006 Program EIR, and further concluded that each overriding consideration would independently warrant approval of the 2006 Project.

2014 Addendum Findings

As discussed in the 2014 Addendum, the changes proposed in the 2014 Project would result in approximately 61 fewer dwelling units and 100,000 less square feet of commercial space than was evaluated in the 2006 Program EIR, although the overall development area would remain primarily unchanged. The 2014 Addendum included no changes to the proposed water tank included in the Specific Plan.

To assess potential air quality impacts associated with the proposed changes to the Specific Plan under the 2014 Project, an updated air quality report was prepared by Analytical Environmental Services (AES). The AES Air Quality Report included a discussion of recent developments in regulatory conditions affecting air quality since the time the City adopted the Specific Plan, as follows:

- The BAAQMD updated its CEQA Guidelines in June 2010 and May 2011. Subsequently, the BAAQMD CEQA Guidelines were challenged and upheld in Court.
- Table 1 in the Air Quality Report shows the updated National and California Ambient Air Quality Standards (NAAQS and CAAQS). Since the approval of the 2006 Program EIR, there have been several changes to the NAAQS and CAAQS as summarized in the AES Air Quality Report.
- Monitors that collect air quality data are located at monitoring stations throughout Sonoma County, the SFBAAB, and the State of California. The Air Quality Report includes updated monitoring data for criteria pollutants collected in 2009, 2010, and 2011.
- The 2011 BAAQMD Guidelines provide methodologies for evaluating impacts due to TACs and PM 2.5 emissions.

The 2014 Addendum, referencing the AES Air Quality Report, concluded that, although construction emissions would be less than the emissions modeled in the 2006 Program EIR, the Specific Plan would result in significant construction-related air quality impacts as described in the 2006 Program EIR under Impact AQ-1. With the implementation of the mitigation measures recommended in the 2006 Program EIR, the 2014 Addendum concluded that construction-related air quality impacts would still be reduced to a less than significant level.

The 2014 Addendum noted that indirect emissions from energy consumption associated with the Specific Plan would be reduced in comparison to the 2006 Project and concluded that the 2014 Project would reduce project-related traffic in the vicinity of the Project site when compared to the 2006 Program EIR. Although project-related Criteria Air Pollutant emissions from the 2014 Project would be less than emissions estimates provided in the 2006 Program EIR, the emissions would continue to exceed the 1999 BAAQMD Guidelines' threshold and 2011 BAAQMD Guidelines thresholds. Consequently, the 2014 Addendum concluded operational emissions would continue to be considered a significant and unavoidable impact to air quality, consistent with the finding of the 2006 Program EIR. Mitigation Measure AQ-2a identified in the 2006 Program EIR would continue to be implemented with the 2014 Project, as discussed in the 2014 Addendum. The 2014 Addendum concluded that odor impacts would also remain less than significant because the types of land uses under the 2014 Project would be the same and would be located in the same area as the Specific Plan.

The 2014 Addendum concluded the updated project would not result in any new significant air quality impacts nor would it result in a substantial increase in the severity of the air quality impacts previously identified in the 2006 Program EIR. No new air quality impacts or a substantial increase in the severity of the air quality impacts presented in the 2006 Program EIR would occur under the 2014 Project.

As indicated in the 2014 Addendum, due to changes in federal, state and local laws since 2006, EIRs must now include an evaluation of greenhouse gas (GHG) emissions and climate change. Accordingly, the 2014 Addendum included an analysis of GHG emissions and climate change impacts. Construction and operational GHG emissions from mobile and area sources were estimated in the AES Air Quality Report using URBEMIS 9.2.4 air quality model. As discussed in the 2014 Addendum, the AES Air Quality Report found that construction GHG emissions associated with the 2014 Project would not be cumulatively considerable in relation to global climate change and would not increase compared to GHG emissions that would occur with implementation of the proposed 2006 Specific Plan. The Report further concluded that operation of the 2014 Project would not generate GHG emissions, either directly or indirectly, that would have a significant impact on the environment or conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. Because GHG emissions reduction measures were not included as a component of the 2006 Project; impacts associated with GHG emissions under the 2014 Project were determined to be less than as would be expected under the 2006 Project and the impact was found to be less than significant.

Analysis of Proposed Project

The proposed Water Tank Project involves the construction of the potable water tank included in the Specific Plan and analyzed in the 2006 Program EIR and 2014 Addendum. Although this Addendum provides additional detail related to the proposed Water Tank Project, the overall project-level components are consistent with the previous assumptions included for the water tank included in the 2006 Program EIR and 2014 Addendum.

As discussed previously in Section IV Use of an Addendum, the details related to the proposed water tank and appurtenances would be substantially similar to those included in the 2006 Program EIR with a few following minor differences and adjustments. Specifically, the tank size would be the same size or slightly larger than anticipated in the 2006 Program EIR; the Proposed Project would include less asphalt paving on the tank access road than was assumed in the 2006 Program EIR; and earthwork for construction of the Proposed Project would be balanced, with no import of additional material or off-haul of materials, as would have occurred under the 2006 Program EIR. .

Because the components of the Proposed Project, including the site development footprint, remain consistent with the assumptions included for the water tank in the Specific Plan and 2014 Project, the impact analyses and conclusions from the 206 Program EIR and 2014 Addendum for air quality and GHG and climate change would still be applicable.

For construction-related air quality impacts, the 2014 Addendum, referencing the AES Air Quality Report, concluded that, although construction emissions would be less than the emissions modeled in the 2006 Program EIR, the Specific Plan would result in significant construction-related air quality impacts as described in the 2006 Program EIR under Impact AQ-1. With the implementation of the mitigation measures recommended in the 2006 Program EIR, the 2014 Addendum concluded that construction-related air quality impacts would still be reduced to a less than significant level. The Proposed Project would also be required to implement Mitigation Measures AQ-1a and AQ-1b, consistent with the 2006 Program EIR and 2014 Addendum, to ensure that construction-related impacts associated with the water tank would remain less than significant.

In terms of operational air quality impacts, the 2014 Addendum, which included the Water Tank Project, concluded that impacts would continue to be considered a significant and unavoidable, consistent with the finding of the 2006 Program EIR. Pursuant to Public Resources Code 21081 and CEQA Guidelines sections 15091 -15093, the City adopted a Statement of Overriding Considerations for the University District Project (Resolution No. 2006-142 adopted on May 23, 2006). The City concluded that specific economic, legal, social, technological, environmental and other considerations and benefits of the 2006 Project would independently outweigh the significant, adverse impacts identified in the 2006 Program EIR, and further concluded that each overriding consideration would independently warrant approval of the 2006 Project.

The Proposed Project would not result in any new significant operational air quality impacts nor would it result in a substantial increase in the severity of the operational air quality impacts previously identified for the Specific Plan and 2014 Project.

As previously discussed, the 2014 Addendum added an analysis of GHG emissions and climate change impacts, as those topics were not covered in the 2006 Program EIR. While the 2014 Project proposed fewer dwelling units and less square feet of commercial space than evaluated in the 2006 Program EIR, the 2014 Addendum noted that the overall development area would remain primarily unchanged. The 2014 Addendum included no changes to the proposed water tank anticipated in the Specific Plan. Therefore, conclusions reached in the 2014 regarding GHG emissions would be applicable to the entire Specific Plan, including the proposed Water Tank Project. As discussed in the 2014 Addendum, the AES Air Quality Report found that construction GHG emissions associated with the 2014 Project would not be cumulatively considerable in relation to global climate change and would not increase compared to GHG emissions that would occur with implementation of the proposed 2006 Specific Plan. The AES Report further concluded that operation of the 2014 Project would not generate GHG emissions, either directly or indirectly, that would have a significant impact on the environment or conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. Accordingly, the Proposed Project would not be expected to result in any new significant impacts nor would it result in a substantial increase in the severity of any air quality impacts and GHG impacts previously identified for the 2006 Program EIR and 2014 Addendum.

It should be noted that since approval of the 2014 Project and the 2014 Addendum, a climate action plan (CAP) titled, "Climate Action 2020 and Beyond," was prepared by the Regional Climate Protection Authority for all communities in Sonoma County (RCPA), including Rohnert Park. The CAP provides regional framework to address climate change and allows local governments to adopt locally appropriate measures to reduce GHG emissions. The CAP also provides information about local climate hazards and what Sonoma County communities can do to prepare. The RCPA board adopted the plan on July11, 2016. A legal challenge to the CAP EIR was filed with the California Superior Court on August 9, 2016. The complaint alleges that the CAP and the CAP EIR fail to adequately asses GHG emissions and that the documents fail to identify sufficient mitigation measures related to achieving the reduction in GHG emissions projected to occur as a result of compliance with the terms of the CAP. Because the legal challenge is still pending, the CAP was not available for use in reviewing and/or mitigating GHG emissions associated with the Proposed Project.

Applicable Mitigation Measures from 2006 Program EIR

Mitigation Measure AQ-1a: Minimize Dust Emissions and Ensure Consistency with Bay Area Air Quality Management District Guidelines for Reducing Construction Impacts

The control practices indicated in Table 3.3-A shall be required during construction within the University District Specific Plan area to minimize dust emissions and ensure consistency with BAAQMD guidelines for reducing construction impacts.

These activities shall be required by the City as conditions of approval on all development permits within the University District Specific Plan area, including grading permits.

Table 3.3-A. Bay Area Air Quality Management District Feasible Control Measures for Construction Emissions of PM10

Measure	Emission Reduction Information
Water all active construction areas at least twice daily and whenever fugitive dust emissions are visible.	50% reduction in particulate matter
Cover all trucks hauling soil, sand, and other loose materials, or require all trucks to maintain at least 2 feet of freeboard.	90% reduction in particulate matter
Pave, apply water three times daily, or apply (nontoxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites.	90% reduction in particulate matter for paving Up to 80% reduction in particulate matter for soil stabilizers
Sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas at construction sites.	34% reduction in particulate matter for paving
Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets.	34% reduction in particulate matter for paving
Hydroseed or apply (nontoxic) soil stabilizers to inactive construction areas (i.e., previously graded areas inactive for 10 days or more).	Up to 80% reduction in particulate matter for soil stabilizers
Enclose, cover, water twice daily (and whenever fugitive dust emissions are visible), or apply (nontoxic) soil binders to exposed stockpiles (e.g., dirt and sand).	90% reduction in particulate matter for covering 50% reduction in particulate matter for watering twice daily Up to 80% reduction in particulate matter for soil binders
Limit traffic speeds on unpaved roads to 15 miles per hour.	–
Install sandbags or other erosion control measures to prevent silt runoff to public roadways.	–
Replant vegetation in disturbed areas as quickly as possible.	5 to 99% (based on planting plan) reduction in particulate matter
Install wheel washers for all exiting trucks, or wash off the tires or tracks of all trucks and equipment leaving the site.	50% reduction in particulate matter
Install windbreaks or plant trees or vegetative wind breaks at windward side(s) of construction areas.	4% (15% for mature trees) reduction in particulate matter
Suspend excavation and grading activity when winds (instantaneous gusts) exceed 25 miles per hour.	–
Limit the area subject to excavation, grading, and other construction activity at any one time.	71 pounds per acre per day

Note: These controls should be implemented at all construction sites. If water is used, only as much water as necessary for dust control shall be used to avoid runoff. Storm drain inlet control measures (e.g. sandbags, filter fabric) should be used. Dry sweeping is a preferred alternative to water sweeping.

– = no information available

Source: Bay Area Air Quality Management District 1999.

Mitigation Measure AQ-1b: Implement Additional Control Measures to Minimize Construction-Related Emissions of Criteria Pollutants

The following control practices shall be required during construction within the University District Specific Plan area to minimize construction emissions and ensure consistency with Bay Area Air Quality Management District (BAAQMD) guidelines for reducing construction impacts. These activities shall be required by the City of Rohnert Park as conditions of approval on all development permits within the University District Specific Plan area, including grading permits.

- Maintain and properly tune all construction engines.

- Restrict idling time of all diesel-powered equipment to 3 minutes or less.
- Use alternative fueled (i.e., compressed natural gas [CNG], biodiesel, water emulsion fuel, electric) construction equipment in place of diesel-powered equipment:
  - 14% NOX reduction, 63% PM10 reduction for water emulsion fuel.
  - Up to 73% NOx reduction, 75% to 80% particulate matter less than or equal to 10 microns in diameter (PM10) reduction for water emulsion fuel.
- Use add-on control devices (i.e., diesel oxidation catalysts, particulate filters):
  - Up to 25% NOx reduction, up to 85% PM10 reduction.
- Use diesel construction equipment that meets the California Air Resources Board's (ARB's) 1996 or newer certification standard for off-road heavy duty diesel engines:
  - Up to 91% NOx reduction, 69% PM10 reduction.
- Phasing construction in the planning area over a longer timeframe.
- Limiting the hours of operation of heavy-duty equipment.

Biological Resources

2006 Program EIR Findings

The 2006 Program EIR identified impacts on biological resources including impacts or potential impacts on wetlands, riparian habitat, including impacts on riparian vegetation along Copeland and Hinebaugh Creeks during construction, oak woodlands, listed plants, and listed animals and their habitats (i.e., California tiger salamander ("CTS"); foothill yellow-legged frogs; northwestern pond turtles; burrowing owl; and tree-, shrub-, and ground-nesting migratory birds and raptors). Mitigation and/or compensation described in the 2006 Program EIR were found to reduce these impacts to a less than significant level.

2014 Addendum Findings

<u>Biological Resources Regulatory Changes and Site Conditions</u>

The 2014 Addendum included analysis of updated CTS regulatory changes. As discussed in the 2014 Addendum, on August 18, 2009, the U.S. Fish and Wildlife Service (USFWS) issued its draft rule proposing to designate critical habitat for the CTS. On August 31, 2011, the USFWS published its final rule designating critical habitat in the Santa Rosa Plain for CTS. The 2014 Addendum also noted that the CDFW[1] also listed CTS as threatened under the State Endangered Species Act effective August 19, 2010. The Project site is outside the designated critical habitat for the Sonoma CTS.

The 2014 Addendum concluded that, since 2006, conditions within the Specific Plan area had not changed in a manner that would result in new biological resources impacts. The update on CTS status prepared by biologist Ted Winfield and provided to the City by the applicant provides information concerning multi-year CTS larval surveys conducted between 1994 and 2003 and five years of aquatic surveys conducted on the Project site and areas east of Petaluma Hill Road, between 2007 and 2011 and states that these studies confirm that CTS do not occur on the property. For these reasons, the 2014 Addendum concluded the change in the listing of the CTS did not result in identification of any new significant impacts related to CTS.

Since certification of the 2006 Program EIR, wetlands mitigation was completed both on and off the Project site and a riparian restoration plan was prepared.

The 2014 Addendum concluded that development under the 2014 Project would occur within the same development footprint as the Specific Plan, with no changes to the water tank site. No new impacts or a substantial increase in the severity of the prior impacts to riparian vegetation, or to oak woodland habitat were found to occur under the 2014 Project. The 2014 Addendum further concluded that there was no new information to indicate habitat for any additional listed species beyond those addressed in the 2006 Program EIR was present within the Specific Plan area and no new impacts or a substantial increase in the severity of the prior impacts to special status species would occur.

Analysis of Proposed Project

To assess the Project's potential impacts to biological resources given the project-level details, Ted Winfield & Associates provided site specific information related to the CTS status and endangered plants and prepared a preliminary advisory assessment concerning the possible presence of features subject to the jurisdiction of the Corps pursuant to Section 404 of the Clean Water Act. A summary of the Ted Winfield & Associates findings are provided below.

<u>CTS and Endangered Plant Impacts</u>

Ted Winfield & Associates prepared a letter report in August 2016 to provide an update on the status of the CTS and endangered plants reported to occur in seasonal wetlands at the proposed

[1] As of January 1, 2013, the California Department of Fish and Game was renamed the California Department of Fish and Wildlife.

water tank site (included as Appendix B to this Addendum). The letter concluded that based on the lack of observation of CTS at the site or nearby areas, CTS are not likely to be present at the site. The letter further concluded that based on the *No Effect* status for the site in the Programmatic Biological Opinion (PBO) issued by the USFWS in 2007, CTS mitigation for activities at the site should not be required.

The Ted Winfield & Associates status letter also concluded that based on the designation of the site as *Presence of CTS is not likely and there are no listed plants in this area*, and the lack of observations at the site and other sites in the immediate vicinity of the site, endangered plants known to occur in seasonal wetlands (vernal pools) on the Santa Rosa Plain are not expected to occur at the site. Mitigation for impacts to wetlands, therefore, should not require plant mitigation following prescriptions of the PBO.

Wetland Impacts

Ted Winfield & Associates prepared the *Preliminary Advisory Assessment Waters of the United States Anderson 53 Site Petaluma Hill Road (East Side) Sonoma County, CA* dated July 26, 2016 (included as Appendix C to this Addendum). The report presents the results of a preliminary advisory assessment concerning the possible presence of features subject to the jurisdiction of the Corps pursuant to Section 404 of the Clean Water Act at the water tank site.

According to the report, approximately 0.568 acre, not including the Copeland Creek channel, were found to meet the Corps definition of waters of the United States. Another approximately 0.81 acre consisted of a swale with marginal jurisdictional features and may not be subject to the Corps' jurisdiction. The area along the base of the eastern side of Petaluma Hill Road between the entrance to the site and the intersection of Rohnert Park Expressway and Petaluma Hill Road did not support any feature that met the technical definition of a jurisdictional wetlands, and except for a few isolated occurrences, there was not a defined bed and bank structure (lack of ordinary high water mark) along the base of the roadway.

As discussed in the Project Description, a metal multi-plate arch culvert bridge would span approximately 35 feet where the access road crosses over a tributary to Copeland Creek. Placement of the arch culvert would be field verified and adjusted by the project biologist as required to avoid disturbance of the wetlands. The metal arch culvert would be supported by two 13.5 foot wide concrete spread footings founded approximately 5 feet below the existing ground surface on either side of the wetland area. Approximately 7 feet of fill would be placed over the top of the arch culvert, which would be retained on either end by precast concrete headwalls. The access road crossing the arch culvert would be bordered by metal beam guardrails on either side. A temporary railcar type bridge would span the wetland area for construction access to the eastern side of the site prior to completion of the arch culvert. The temporary bridge would be installed and removed without construction equipment entering the wetland area.

The two water transmission mains would cross the tributary to Copeland Creek within the fill over the arch culvert. The access road is proposed to be located along the north property line and outside of the delineated wetlands on-site. Construction of the water transmission mains would occur within Petaluma Hill Road. No impacts to wetlands are expected with construction or operation of the water tank. Prior to work, orange construction fencing would be installed along the environmentally sensitive wetland areas adjacent to construction as indicated on the project plans, and at the direction of the project biologist. In addition to the orange construction fencing, silt fencing and straw wattles would be installed along the uphill slope of the wetland area. The orange construction fencing would be removed upon the completion of construction, and the silt fencing and straw wattles would remain in place until vegetation has been re-established. This is consistent with Mitigation Measure BIO-5a.

Mitigation Measure BIO-6a ensures protection for the oak trees on-site during construction. Mitigation Measures BIO-13a and BIO-14a require preconstruction surveys for protected birds if construction would occur during nesting season. Prevention of introduction of noxious weeds during construction is addressed in BIO-15a. Therefore, the impacts of the Water Tank Project have already been analyzed and mitigated in the 2006 Program EIR. Compliance with the mitigation measures set forth in the 2006 Program EIR would ensure the Water Tank Project would not result in any new significant impacts nor would it result in a substantial increase in the severity of any biological resources impacts previously identified for the 2006 Program EIR and 2014 Addendum.

Applicable Mitigation Measures from 2006 Program EIR

Mitigation Measure BIO-5a: Install Construction Barrier Fencing to Protect Sensitive Biological Resources Adjacent to the Construction Zone

The project proponent or its contractor will install orange construction barrier fencing to protect sensitive biological resources. The construction specifications will require that a qualified biologist identify sensitive biological habitat on site and identify areas to avoid during construction. Sensitive resources that occur in and adjacent to the proposed construction area (study area) include Hinebaugh Creek, Copeland Creek, unnamed drainages, seasonal wetlands, oak trees, and any active bird nests. Any sensitive resources within the area that can be avoided by construction will be fenced off to avoid disturbance in these areas.

Before construction, the construction contractor will work with the project engineer and a resource specialist to identify the locations for the barrier fencing and will place stakes around the sensitive resource sites to indicate these locations. The protected area will be designated as an environmentally sensitive area and clearly identified on the construction specifications. The fencing will be installed before construction activities are initiated and will be maintained throughout the construction period. The following paragraph will be included in the construction specifications:

> The Contractor's attention is directed to the areas designated as "environmentally sensitive areas." These areas are protected, and no entry by the Contractor for any purpose will be allowed unless specifically authorized in writing by the City. The Contractor will take measures to ensure that Contractor's forces do not enter or disturb these areas, including giving written notice to employees and subcontractors.

Temporary fences around the environmentally sensitive areas will be installed as the first order of work. Temporary fences will be furnished, constructed, maintained, and removed as shown on the plans, as specified in the special provisions, and as directed by the project engineer. The fencing will be commercial-quality woven polypropylene (Tensor Polygrid or equivalent), orange in color, and at least 4 feet high. The fencing will be tightly strung on posts with maximum 10-foot spacing.

Clarified Mitigation Measure BIO-6a: Protect Oak Trees to be Preserved

Oak trees within the proposed ~~park~~ project area will be avoided and protected as required by General Plan policies (see EIR "Regulatory Setting"). As described under Mitigation Measure BIO-5a, oaks will be protected by installing orange construction barrier fencing to prevent activities that result in soil compaction beneath the canopy or over the root zone. Prior to construction near oak trees or any pruning of oak trees, if necessary, the contractor will implement general tree preservation guidelines identified in the *Tree Preservation and Mitigation Report: Vast Oak Property Tree Inventory, Portions of Hinebaugh Creek and Freestanding Trees* (Horticultural Associates 2004).

Mitigation Measure BIO-13a: Conduct Preconstruction Surveys for Active Burrowing Owl Burrows and Implement the California Department of Fish and Game Guidelines for Burrowing Owl Mitigation, if Necessary

The *Staff Report on Burrowing Owl Mitigation*, published by DFG (California Department of Fish and Game 1995), recommends that preconstruction surveys be conducted to locate active burrowing owl burrows in the construction area and in a 250-foot-wide buffer zone around the construction area. The project proponent will retain a qualified wildlife biologist to conduct preconstruction surveys for active burrows according to DFG guidelines. The preconstruction surveys will include a breeding season survey and a wintering season survey conducted in the winter and spring/summer prior to initiation of project construction (including grading). If no burrowing owls are detected, then no further mitigation is required. If active burrowing owls are detected in the survey area, the following measures shall be implemented prior to construction.

- Occupied burrows shall not be disturbed during the breeding season (February 1–August 31).

- When destruction of occupied burrows is unavoidable during the nonbreeding season (September 1–January 31), unsuitable burrows will be enhanced (enlarged or cleared of debris) or new burrows created (installing artificial burrows) at a ratio of 2:1 on nearby protected lands approved by DFG. Newly created burrows will follow guidelines established by DFG.

- If owls must be moved away from the study area during the non-breeding season, passive relocation techniques (e.g., installing one-way doors at burrow entrances) will be used instead of trapping. At least 1 week will be necessary to accomplish passive relocation and allow owls to acclimate to alternate burrows.

- To offset the loss of burrowing owl nesting and foraging habitat in the construction area, the project proponent will acquire and permanently protect a minimum of 6.5 acres of foraging habitat per occupied burrow identified in the construction area. The protected lands should be located adjacent to the occupied burrowing owl habitat in the study area or at another occupied site near the study area. The location of the protected lands will be determined in coordination with DFG. The project proponent will also prepare a monitoring plan, and provide long-term management and monitoring of the protected lands. The monitoring plan will specify success criteria, identify remedial measures, and require an annual report to be submitted to DFG.

- If avoidance is the preferred method of dealing with potential impacts, no disturbance should occur within 160 feet of occupied burrows during the nonbreeding season (September 1–January 31) or within 250 feet during the breeding season (February 1–August 31). Avoidance also requires that at least 6.5 acres of foraging habitat (calculated based on an approximately 300- foot foraging radius around an occupied burrow), contiguous with occupied burrow sites, be permanently preserved for each pair of breeding burrowing owls or single unpaired resident bird. The configuration of the protected site will be submitted to DFG for approval.

Mitigation Measure BIO-14a: Avoid Disturbance of Tree-, Shrub-, and Ground-Nesting Special-Status and Non- Special-Status Migratory Birds

Causing the abandonment or removing active nests (with eggs or young) of Cooper's hawk, white-tailed kite, northern harrier, loggerhead shrike, yellow warbler, yellow-breasted chat, horned lark, and grasshopper sparrow and many other non-special-status migratory birds violates the California Fish and Game Code and the federal MBTA. To avoid this impact, one or more of the following options will be implemented as part of development projects within the study area.

If construction activities are scheduled to occur during the breeding season for these species (generally between March 1 and August 15), a qualified wildlife biologist will be retained to conduct the following focused nesting surveys within the appropriate habitat:

- Tree- and shrub-nesting surveys will be conducted in riparian and oak woodland habitats within or adjacent to the construction work area to look for Cooper's hawk, white-tailed kite, loggerhead shrike, yellow warbler and yellow-breasted chat.

- Ground-nesting surveys will be conducted in annual grasslands, seasonal wetlands, and agricultural areas within and adjacent to the construction work area to look for northern harrier, horned lark, and grasshopper sparrow and non-special-status migratory birds and raptors.

The surveys should be conducted within 1 week prior to initiation of construction activities within those habitats and at any time between March 1 and August 15. If no active nests are detected during surveys, then no additional mitigation is required.

If construction activities are scheduled to occur during the breeding season (generally between March 1 and August 15), and if surveys indicate that special-status or non-special-status migratory bird nests are found in any areas that would be directly affected by construction activities, a no-disturbance buffer will be established around the site to avoid disturbance or destruction of the nest site until after the breeding season or after a wildlife biologist determines that the young have fledged (usually late-June to mid-July). The extent of these buffers will be determined by a wildlife biologist and will depend on the level of noise or construction disturbance, line of sight between the nest and the disturbance, ambient levels of noise and other disturbances, and other topographical or artificial barriers. These factors should be analyzed to make an appropriate decision on buffer distances.

If construction activities begin prior to the breeding season (i.e., if construction activity begins between September 1 and February 28), then construction can proceed until it is determined that an active special-status or non-special-status migratory bird or raptor nest is subject to abandonment as a result of construction activities. Construction activities should be in full force, including at a minimum, grading of the site and development of infrastructure. A minor activity that initiates construction but does not involve the full force of construction activities will not qualify as "pre-existing construction." Optimally, the project site will be entirely graded so that there is no potential for nesting birds at the beginning of the breeding season (generally between March 1 and August 15). If special-status or other migratory birds nest in the vicinity of the project under this pre-existing construction condition, then it is assumed that they are habituated or will habituate to the construction activities. Under this scenario, the pre-construction survey should still be conducted on or after April 1 to identify any active nests in the vicinity, and active sites should be monitored by a wildlife biologist periodically until after the breeding season or after the young have fledged (usually late-June to mid-July). If active nests are identified on or immediately adjacent to the project site, then all non-essential construction activities (e.g., equipment storage, meetings, etc.) should be avoided in the immediate vicinity of the nest site; however, construction activities can proceed.

Mitigation Measure BIO-15a: Avoid the Introduction or Spread of Noxious Weeds into Previously Uninfested Areas

To prevent the introduction of new noxious weeds or spread of existing noxious weeds in the study area, the project proponent or its contractors will implement the following measures during construction activities:

- Educate construction supervisors and managers on weed identification and the importance of controlling and preventing the spread of noxious weed infestations.
- Clean construction equipment at designated wash stations before entering and upon leaving the construction work area.
- Seed all disturbed areas on which there has been no construction within the same season with certified weed-free native mixes or certified weed-free rice straw.
- Conduct a follow-up inventory of the construction area to verify that construction activities have not resulted in the introduction of new noxious weed infestations.

If new noxious weed infestations are located during the follow-up inventory, contact the appropriate resource agency to determine the appropriate species-specific treatment methods.

Cultural Resources

2006 Program EIR Findings

The 2006 Program EIR concluded construction within the Specific Plan area would result in potential adverse impacts to a late period archaeological site (Impact C-1), three other known prehistoric archaeological sites (Impact C-2), and several historic resources (Impact C-3). The 2006 Program EIR also concluded that buildout of the Specific Plan could have a potentially adverse impacts on archeological sites (Impact C-4) and undiscovered buried cultural deposits (Impact C-5). Mitigation measures included in the 2006 Program EIR were included to reduce each of these potential impacts to less than significant levels.

2014 Addendum Findings

The 2014 Addendum concluded there was no new information identifying the presence of any additional cultural resources within the Specific Plan area. Because development of the 2014 Project would occur within the same development footprint as the Specific Plan, the 2014 Addendum concluded that the impacts to cultural resources resulting from the 2014 Project would be the same as the impacts associated with the Specific Plan as further identified in Impacts C-1 through C-5, with no new impacts or a substantial increase in the severity of the prior cultural resources impacts.

Analysis of Proposed Project

Due to the lapse of time between preparation of the 2006 Program EIR and this Addendum, and as a result of changes in tribal consultation requirements per Assembly Bill 52 (signed into law on September 25, 2014, subsequent to the 2014 Addendum), Dudek archeologists completed an updated records search and conducted an intensive-level pedestrian survey of the water tank site in August 2016. The results of the records search and field survey are summarized below and included in the Cultural Resources Report included as Appendix D to this Addendum.

<u>Records Search</u>

A records search was completed for the Water Tank Project for a one-half mile radius around the Project area by staff at the Northwest Information Center (NWIC) at Sonoma State University on August 12, 2016. The records search identified three (3) historic-age resources adjacent to the Project area. No archaeological resources (including prehistoric and historic-age sites and isolates) have been previously recorded within the planned Project area. Eight (8) archaeological sites (seven (7) prehistoric and one (1) historic-age) have been recorded within the half-mile area surrounding the Project area.

<u>Pedestrian Survey</u>

Intensive-level pedestrian survey of the Project area was completed in 15-meter transects throughout the entire project on August 20, 2016 by Dudek. The survey resulted in the identification of three archaeological isolates and one site (see descriptions below).

Due to the low visibility of ground surface from existing pavement along Petaluma Hill Road and low-laying grasses along the east-west project alignment leading to the proposed water tank site, Dudek archaeologists returned on August 30, 2016 for a more thorough inspection and to implement an Extended Phase I (XPI) survey and exploratory probing program at the water tank site. The grassy pasture area was intensively resurveyed and no additional resources were identified.

Identified Resources

Two isolated resources (RWT-AG-1 and RWT-AG-2; defined as two or less artifacts in a 30 square meter area) were observed to fall within/near the planned project alignment. One additional isolate (RWT-AG-1) was identified in/near (likely outside of) the proposed water tank site. One archaeological site (RWT-BB-S-1) was recorded to the south of, outside, the proposed pipeline alignment and water tank site. These resources are summarized below.

> **RWT-BB-S-1:** This prehistoric site consists of more than 25 shell fragments, 2 obsidian bifaces, and 1 cryptocrystalline silicate (CCS) silicate shatter. One shovel test pit excavated in this area indicates the presence of a subsurface component to this site. The site appears to be outside of the project footprint. If future plans may include impacting this site, or ground disturbing work in the immediate vicinity, additional evaluation for California Register of Historic Resources (CRHR) and National Register of Historic Places (NRHP) would be required. This would require additional formal evaluation of this site, including excavation and lab analysis of any recovered material.
>
> **RWT-AG-I-1**: This isolate consists of one rhyolite core. While the material is consistent with the extruding volcanic material along the southwestern slope of this hillside, no definitive evidence of local prehistoric or historic-period exploitation of this material was observed during a thorough inspection of these outcrops. Given the lack of observed evidence for use as a quarry area (which would include a high abundance of lithic waste associated with the process of assaying material); no site was recorded in this area. Four shovel test pits were excavated in areas intersecting planned project components, all of which yielded negative results. The material is of relatively poor quality within the portion of the slope that intersects the planned project parcel, and it is possible that outcrops of more favorable quality are present elsewhere.
>
> **RWT-AG-I-2:** This isolate includes one depleted chert core identified in a disturbed area previously excavated for wetland delineation. Exact provenience of this item is unclear. This item is located within the road and pipeline alignment for the water tank. A shovel test pit (STP) was excavated near this isolate with negative results.
>
> **RWT-AG-I-3:** This isolate includes one piece of CCS shatter and one small fragment of marine shell within a 13 meter distance along a dirt road. Both items were identified on the road surface. Two STPs were excavated in this area with negative results. It is likely that this material has been washed from elsewhere.

As summarized above, the Cultural Resources Inventory prepared for the Proposed Project identified one (1) prehistoric isolate within the planned Project area. Isolates are not considered eligible for listing in the CRHR or the NRHP. Two (2) additional prehistoric isolates and one prehistoric archaeological site were identified within 100 feet outside of the Project area. The Cultural Resources Inventory concluded that no known significant archaeological resources would be impacted by planned project activities. However, in consideration of the identified presence of archaeological resources in the vicinity, and the geomorphology of the surrounding soils, the Cultural Resources Inventory states that there is potential for the Project to encounter yet-identified cultural material or deposits within portions of the Project area located east of Petaluma Hill Road. Accordingly, implementation of a cultural monitoring program is recommended within these portions of the Project area. Implementation of Mitigation Measure C-5a, as updated from the 2006 Program EIR would ensure that impacts related to inadvertent archaeological discoveries would remain less than significant. The proposed updates to Mitigation Measure C-5a provide clarification on current applicable procedures in the event cultural resources are uncovered during initial ground-disturbing activities. The intent of the Mitigation Measure remains consistent with the 2006 Program EIR and would ensure that impacts related to inadvertent discovery of cultural resources remains less than significant.

Applicable Mitigation Measures from 2006 Program EIR

Updated Mitigation Measure C-5a: Implement a Monitoring Program for Buried Cultural Resources

The City shall require that Native American and archaeological monitors are present during all <u>initial</u> ground-disturbing activities <u>with the potential to encounter Native American cultural resources</u>. A ~~monitoring~~ <u>technical report with monitoring recommendations</u> shall be prepared by a qualified archaeologist to guide the actions of monitors and construction crews in the event of an archaeological discovery. <u>Archaeological and Native American monitoring may be adjusted at the recommendation of the qualified archaeologist, and in consultation with the City, based on inspection of exposed subsurface soils and their observed potential to contain intact cultural deposits or material.</u> ~~The contents of the monitoring plan would conform to the description given in Mitigation Measure C-1a.~~

<u>In the event that archaeological resources (sites, features, or artifacts) are exposed during construction activities for the proposed project, all construction work occurring within 100 feet of the find shall immediately stop until a qualified archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards, can evaluate the significance of the find and determine whether or not additional study is warranted. Depending upon the significance of the find under CEQA (14 CCR 15064.5(f); PRC Section 21082), the archaeologist may simply record the find and allow work to continue. If the discovery proves significant under CEQA or Section 106 of the NHPA, additional work such as preparation of an archaeological treatment plan, testing, or data recovery may be warranted.</u>

In accordance with Section 7050.5 of the California Health and Safety Code, if potential human remains are found the county coroner shall be immediately notified of the discovery. The coroner will provide a determination within 48 hours of notification. No further excavation or disturbance of the identified material, or any area reasonably suspected to overlie additional remains, shall occur until a determination has been made. If the county coroner determines that the remains are, or are believed to be, Native American, they shall notify the Native American Heritage Commission (NAHC) within 24 hours. In accordance with California Public Resources Code Section 5097.98, the NAHC must immediately notify those persons it believes to be the most likely descendent (MLD) from the deceased Native American. Within 48 hours of their notification, the MLD will recommend to the lead agency their preferred treatment of the remains and associated grave goods.

Geology and Soils

2006 Program EIR Findings

The Project area is situated on a broad alluvial plan that slopes gently towards the west as described in Chapter 3.6 of the 2006 Program EIR. The regional geologic map of the Project area indicates that the area site is underlain by Holocene alluvium, consisting of unconsolidated gravel, sand, silt and clay loam (Miller 1972). Section 3.6 of the 2006 Program EIR provides a summary of the geologic conditions affecting the Specific Plan area.

The Project site is located within the San Francisco Bay Area, which is a seismically active area. Although there are no known faults located within the Project site, numerous active and potentially active faults are located in the general project vicinity. Geologic impacts analyzed in the 2006 Program EIR were determined to be less than significant in the case of surface fault rupture or potentially significant in cases where conditions could expose people or structures to adverse effects from seismic ground shaking during seismic activities or to geological hazards associated with the offsite water tank. The 2006 Program EIR also determined that the Project would not be expected to result in impacts due to liquefaction or landslides and other slope failures. Construction-related soil erosion and sedimentation related-impacts were determined to be less than significant. Potentially significant and significant impacts, however, could result from ground settlement and expansive soils. All of these impacts were concluded to be mitigated to a less than significant level.

2014 Addendum Findings

The ENGEO Geotechnical Exploration Update Prepared for the UD LLC and Vast Oak Properties dated December 21, 2012 confirmed that geotechnical conditions had not changed since the 2006 Program EIR was prepared.

In reviewing the proposed 2014 Project, the City confirmed that no changes to the regulatory background or existing conditions relative to geologic conditions on the Specific Plan site had occurred that would trigger the need for subsequent environmental review of the 2014 Project based on the analysis contained in the ENGEO Geotechnical Exploration Update.

The 2014 Project did not include any operational activities that would create new environmental impacts or new construction methods that would result in any additional geologic or geotechnical impacts when compared to the impacts analyzed in the 2006 Program EIR because all improvements would occur within the same development footprint evaluated in the 2006 Program EIR.

The 2014 Addendum concluded that construction methods and activities of the 2014 Project were consistent with those construction methods and activities described in the 2006 Program EIR, and, therefore, the proposed 2014 Project would not result in any new significant impacts or more severe impacts than those analyzed in the 2006 Program EIR. Impacts to soils/geology and seismicity determined to be potentially significant in Section 3.6 of the 2006 Program EIR would remain potentially significant due to the 2014 Project, as a result of the possibility of seismic activities and existing soil characteristics of the Project area. These potentially significant impacts would be reduced to a less than significant level based on the incorporation of the mitigation measures identified in the 2006 Program EIR, including the recommendations contained in the Geotechnical Exploration Update, and listed in Mitigation Measures GEO-2a, GEO-5a, and GEO-7a.

Analysis of Proposed Project

For the proposed Water Tank Project, ENGEO reviewed the following geotechnical reports:

- ENGEO; *Geotechnical Exploration; Anderson 128 Property, Water Reservoir*; Rohnert Park, California; April 22, 2005; Project No. 5716.100.701
- ENGEO; *Geotechnical Exploration; Anderson 128 Property, Water Reservoir Access Road*; Rohnert Park, California; August 22, 2006; Project No. 5716.100.701
- ENGEO; *Updated Seismic Design Criteria; Tank 8 Schedule B*; Rohnert Park, California; August 29, 2014; Project No. 5716.100.101

Note: The above-listed reports are available for review at the City Development Services Department located at 130 Avram Avenue, Monday through Friday between the hours of 8:00am and 5:00pm.

ENGEO concluded that the geotechnical recommendations contained in the above-listed reports are still applicable for the Project site (ENGEO, 2016).

As discussed in the 2006 Program EIR, conclusions of the geotechnical study performed by ENGEO (2005), found in Appendix K of the 2006 Program EIR, was that the that construction of the proposed water tank would be feasible from a geotechnical standpoint. The primary geotechnical concern identified in the report was the potential for onsite differential expansion below the tank site from the presence of highly expansive tuff beds within the bedrock at the proposed reservoir location. To minimize the potential impact of the expansive site materials, the report recommended that the proposed reservoir tank should be underlain by relatively uniform subgrade materials. The 2006 Program concluded that this impact is potentially significant, but would be reduced to a less than significant level by implementing EIR Mitigation Measure GEO-5a. Mitigation Measure GEO-5a requires that the applicant design and construct all facilities associated with the water tank, including the tank, road, and utilities, in accordance with the recommendations of the geotechnical report (ENGEO's *Geotechnical Exploration; Anderson 128 Property, Water Reservoir)* for the site, contained in Appendix K of the 2006 Program EIR.

To ensure impacts associated with the proposed Water Tank remain less than significant, the Project would be required to comply with applicable uniform building code standards (pursuant to EIR Mitigation Measure GEO-2a) and implement Mitigation Measure GEO-5a, which has been updated to also include compliance with the recommendations contained in the two additional ENGEO reports: *Geotechnical Exploration; Anderson 128 Property, Water Reservoir Access Road* and *Updated Seismic Design Criteria; Tank 8 Schedule B.*

Applicable Mitigation Measures from 2006 Program EIR

Mitigation Measure GEO-2a: Comply with Applicable Uniform Building Code Standards

The project applicant will design and construct all project facilities in accordance with the most recent seismic standards of the California Building Standards Code. The City shall confirm, during plan check, that the most recent code has been followed.

Revised Mitigation Measure GEO 5-a: Comply with Recommendations of Geotechnical Report for the Offsite Water Tank Site

The project applicant will design and construct all facilities associated with the water tank, including the tank, road, and utilities, in accordance with the recommendations of the following geotechnical reports and design criteria for the site:

- ENGEO; Geotechnical Exploration; Anderson 128 Property, Water Reservoir; Rohnert Park, California; April 22, 2005; Project No. 5716.100.701
- ENGEO; Geotechnical Exploration; Anderson 128 Property, Water Reservoir Access Road; Rohnert Park, California; August 22, 2006; Project No. 5716.100.701

- ENGEO; Updated Seismic Design Criteria; Tank 8 Schedule B; Rohnert Park, California; August 29, 2014; Project No. 5716.100.101

Hazards and Hazardous Materials

2006 Program EIR Findings

Two prior Phase 1 environmental site assessments were performed in the Specific Plan area as described on Pages 3.7-1 and 3.7-2 of the 2006 Program Draft EIR. No hazardous materials sites were identified within the Specific Plan area at that time.

The 2006 Program EIR indicated that the 2006 Project would result in less than significant hazardous materials related impacts due to accident conditions or release of hazardous materials, or in potentially significant impacts that would be mitigated to a less than significant level as summarized for Impacts HAZ-1 through HAZ-6. The 2006 Program EIR indicated that the 2006 Project would result in less than significant hazardous materials related impacts since there are no Federal National Priority List (NPL) sites within the Specific Plan area, and remediation was completed on the one identified leaking underground storage tank (LUST) site within 0.5 miles of the project site.

2014 Addendum Findings

According to the 2014 Addendum, no hazardous materials sites had been identified within the Specific Plan area since the 2006 Program EIR.

The 2014 Addendum concluded the 2014 Project would not result in any new significant hazards and hazardous materials impacts nor would it result in a substantial increase in the severity of the impacts previously identified for the 2006 Program EIR. All hazards and hazardous materials impacts resulting from the 2014 Project would be the same or less than the 2006 Project as explained in the 2014 Addendum, and would be mitigated to a less than significant level with the incorporation of mitigation previously identified in the 2006 Program EIR. No new hazards and hazardous materials impacts or a substantial increase in the severity of the prior impacts would occur under the 2014 Project.

Analysis of Proposed Project

The proposed Water Tank Project does not include any operational activities that would create new environmental impacts or new construction methods that would result in any new or substantially more severe hazardous materials when compared to the impacts analyzed in the 2006 Program EIR. All improvements associated with the Water Tank project would occur within the same development footprint evaluated in the 2006 Program EIR. Applicable mitigation measures that would ensure the Project impacts remain less than significant are discussed below.

Applicable Mitigation Measures from 2006 Program EIR

Mitigation Measure HAZ-2a: Follow City of Rohnert Park Fire Department and Other Guidelines for Storage and Handling of Hazardous Materials

The City shall require that contractors transport, store, and handle hazardous materials required for construction in a manner consistent with relevant regulations and guidelines, including those recommended and enforced by the City of Rohnert Park Fire Department (RPFD). Among other things, the RPFD's guidelines require contractors to transport and store materials in appropriate and approved containers along designated truck routes, maintain required clearances, and handle materials using fire department–approved protocols.

Mitigation Measure HAZ-2b: Immediately Contain Spills, Excavate Spill-Contaminated Soil, and Dispose of It at an Approved Facility

In the event of a spill of hazardous materials in an amount reportable to the RPFD (as established by fire department guidelines), the contractor shall immediately control the source of the leak and contain the spill. If required by the RPFD or other regulatory agencies, contaminated soils will be excavated and disposed of offsite at a facility approved to accept such soils.

Mitigation Measure HAZ-2c: Develop and Implement Plans to Reduce Exposure of People and the Environment to Hazardous Conditions during Construction Activities

The City shall require the applicant to develop plans to prevent the pollution of surface water and groundwater and to promote the health and safety of workers and other people in the project vicinity. These programs shall include an operations and maintenance plan, a site-specific safety plan, and a fire prevention plan, in addition to the SWPPP required for hydrology impacts. The programs are required by law and shall require approval by several responsible agencies. Required approvals are as follows: the SWPPP shall be approved by the RWQCB; the site-specific safety plan and the operations and maintenance plan shall be approved by Cal-OSHA; and the fire safety plan shall be approved by the Rohnert Park fire department.

The City shall also require the applicant to develop and implement a hazardous materials management plan that addresses public health and safety issues by providing safety measures, including release prevention measures; employee training, notification, and evacuation procedures; and adequate emergency response protocols and cleanup procedures.

Finally, the City shall require the applicant and its designated contractors to comply with Cal-OSHA, as well as federal standards, for the storage and handling of fuels, flammable materials, and common construction-related hazardous materials and for fire prevention. Cal-OSHA requirements can be found in the California Labor Code, Division 5, Chapter 2.5. Federal standards can be found in Occupational Safety and Health Administration Regulations, Standards—29 CFR.

Mitigation Measure HAZ-6a: Before Construction Begins, Clear Materials That Could Serve as Fire Fuel from Areas Slated for Construction Activities

If dry vegetation or other fire fuels exist on or near staging areas, welding areas, or any other area on which equipment will be operated, contractors shall clear the immediate area of fire fuel. To maintain a firebreak and minimize the availability of fire fuels, the City shall require contractors to maintain areas subject to construction activities clear of combustible natural materials to the extent feasible. To avoid conflicts with policies to preserve riparian habitat, areas to be cleared shall be identified with the assistance of a qualified biologist.

Mitigation Measure HAZ-6b: Require That Spark- Generating Construction Equipment Be Equipped with Manufacturers' Recommended Spark Arresters

The City shall require contractors to equip any construction equipment that normally includes a spark arrester with an arrester in good working order. Subject equipment includes, but is not limited to, heavy equipment and chainsaws. Implementation of this measure would minimize a source of construction-related fire.

Noise

2006 Program EIR Findings

The 2006 Program EIR described noise sensitive land uses based on the existing conditions within the Specific Plan area. The east side was characterized as undeveloped agricultural land. Redwood Park Estates, Creekside Middle School, "J" Section residential development and Kisco Wellness Center were located in the west site. Several isolated single-family residents were located on the north side and the Green Music Center and SSU were located on the south side (see 2006 Program EIR, p. 3.8-2).

The 2006 Program EIR provides an extensive noise impact analysis. The analysis consisted of 15-minute noise measurements conducted at various sites along the perimeter of the specific plan boundaries. Construction noise impacts were analyzed using estimated noise levels of site-specific, heavy-duty vehicles, and construction equipment. Construction noise impacts were determined to be less than significant with mitigation. Project-related traffic noise impacts were determined using the Federal Highway Administration Traffic Noise Prediction Model, which utilized the traffic volumes provided in the 2005 TIS (W-Trans, 2005) and measured ambient noise levels. Near-term traffic noise impacts were determined to be less than significant with mitigation. The 2006 Program EIR found that noise impacts on existing residential uses and new residential units constructed as a part of the 2006 Project adjacent to Rohnert Park Expressway and Snyder Lane would require construction of noise barriers or additional setbacks along Rohnert Park Expressway to reduce impacts to a less than-significant level and that traffic generated by the project would contribute to cumulative noise impacts that cannot be reduced to a less than significant level by available measures, and would be significant and unavoidable. Pursuant to Public Resources Code 21081 and CEQA Guidelines sections 15091 -15093, the City adopted a Statement of Overriding Considerations for the University District Project (Resolution No. 2006-142 adopted on May 23, 2006). The City concluded that specific economic, legal, social, technological, environmental and other considerations and benefits of the 2006 Project would independently outweigh the significant, adverse impacts identified in the 2006 Program EIR, and further concluded that each overriding consideration would independently warrant approval of the 2006 Project.

2014 Addendum Findings

The 2014 Addendum concluded that 2014 Project components were similar to the Specific Plan components analyzed in the 2006 Program EIR; therefore, construction activities and equipment analyzed in the 2006 Program EIR would also be the same. The 2006 Program EIR determined that construction of the 2006 Project would result in a less than significant impact with the implementation of Mitigation Measures N-1a, N-1b, and N-1c. With the implementation of Mitigation Measures N-1a, N-1b, and N-1c identified in the 2006 Program EIR, construction of the 2014 Project would result in a less than significant short-term noise impact. Similarly, the 2006 Program EIR analyzed the impact of vibration noise on sensitive noise receptors in the vicinity of the project site and determined that project construction would result in a less than significant impact. Because sensitive noise receptors in the vicinity of the Specific Plan area were the same as those identified in the 2006 Program EIR and the 2014 Project construction activities would be the same as and occur at the same distance from sensitive noise receptors as those analyzed in the 2006 Program EIR, the 2014 Addendum determined that impacts relating to vibration noise from the construction of the 2014 Project would continue to be less than significant.

The 2014 Addendum included an updated Noise Study which reported that based on the revised Traffic Study, traffic noise would not increase as a result of the proposed changes to the project. Changes in the 2014 Project site plan may slightly reduce noise effects internal to the project site, as the commercial and mixed use land uses would be located at the outside of the project site, rather than in the center of the site. Mitigation measures would still be required. No new significant noise impacts or a substantial increase in the severity of any prior noise impacts would occur.

Analysis of Proposed Project

The proposed Water Tank Project would include construction of the water tank anticipated in the 2006 Program EIR. The proposed Water Tank Project components would be substantially similar to those included in the Specific Plan and analyzed in the 2006 Program EIR; therefore, construction activities and equipment analyzed in the 2006 Program EIR would also be the same. As previously noted, the closest rural residences are located approximately 500 feet from the proposed water tank site. As was concluded in the 2006 Program EIR, construction of the 2006 Project, which included the water tank site, would result in a less than significant impact with the implementation of Mitigation Measures N-1a, N-1b, and N-1c. With the implementation of the aforementioned mitigation measures from the 2006 Program EIR, short-term construction-related noise impacts to residences within 500 feet of project site would be less than significant. No new significant construction-related noise impacts or a substantial increase in the severity of prior construction-related noise impacts identified in the 2006 Program EIR would occur.

Operation of the water tank would not result in new significant noise impacts or a substantial increase in the severity of any prior noise impacts identified in the 2006 Program EIR and 2014 Addendum.

Applicable Mitigation Measures from 2006 Program EIR

Mitigation Measure N-1a: Restrict Hours of Construction Activity

Noise-generating construction activities within 500 feet of residences will be restricted by the City to the hours of operation between 8:00 a.m. to 6:00 p.m. Exceptions to this may be allowed if an exemption by special permit is issued by the superintendent of public works prior to commencement of construction.

Mitigation Measure N-1b: Disseminate Essential Information to Residences and Implement a Complaint/Response Tracking Program

The construction contractor will notify residences within 500 feet of the construction areas of the construction schedule in writing before construction. The construction contractor will designate a noise disturbance coordinator who will be responsible for responding to complaints regarding construction noise. The coordinator will determine the cause of the complaint and will ensure that reasonable measures are implemented to correct the problem. A contact telephone number for the noise disturbance coordinator will be conspicuously posted on construction site fences and will be included in the written notification of the construction schedule sent to nearby residents.

Mitigation Measure N-1c: Locate Construction Equipment as Far Away from Residences as Feasible

Stationary construction equipment that generates noise levels in excess of 65 dBA Leq shall be located as far away from existing residential areas as possible. If required to minimize potential noise conflicts, the equipment shall be shielded from noise sensitive receptors by using temporary walls, sound curtains, or other similar devices. Heavy-duty vehicle storage and start-up areas shall be located a minimum of 150 feet from occupied residences where feasible.

Population and Housing

2006 Program EIR Findings

The 2006 Program EIR evaluated environmental impacts due to the increase in population growth related to growth inducement, housing and displacement of populations and found that there would be no significant impacts related to population and housing, primarily because the 2006 Project did not include the removal of any existing housing and construction workers and workers for the job-generating uses proposed as a part of the 2006 Project would be available in the area. The 2006 Program EIR evaluated environmental impacts due to the displacement of substantial numbers of existing housing and concluded that the impacts were less than significant.

2014 Addendum Findings

Development of the 2014 Project would occur within the same development footprint as the Specific Plan, with slightly reduced levels of residential units. No changes to the water tank were proposed in the 2014 Project. The 2014 Addendum determined that no new significant population-generated impacts or a substantial increase in the severity of any prior impacts would occur, and the 2014 Project, as was found for the Specific Plan, would have a beneficial impact on housing.

Analysis of Proposed Project

The proposed Water Tank Project would involve construction of the water tank anticipated in the 2006 Program EIR. The proposed Water Tank Project would not result in any new significant population-related impacts nor would it result in a substantial increase in the impacts previously identified in the 2006 Program EIR. The Project would result in no new population-related impacts or a substantial increase in the severity of the prior impacts would occur under the 2014 Project.

Applicable Mitigation Measures from 2006 Program EIR

None

Public Services

2006 Program EIR Findings

The 2006 Program EIR evaluated environmental impacts due to the increased demand for public services generated by development of the University District. The 2006 Program EIR found that the 2006 Project would result in impacts related to increased demand for public services (i.e., police protection, fire protection, schools, and parks and recreation). The 2006 Program EIR further concluded that the impacts related to police and fire protection would be less than significant with planned infrastructure and staffing improvements, impacts related to schools would be reduced to less than significant with EIR mitigation requiring payment of school fees by the developer, and impacts related to parks and recreation would be less than significant with dedication of parkland included in the 2006 Project.

2014 Addendum Findings

The 2014 Addendum concluded that because the 2014 Project resulted in lower levels of development, including fewer residential units, it would not generate higher levels of demand for public services, including impacts to fire, police, schools, parks and recreation. Therefore, no new significant impacts or a substantial increase in the severity of any public service impacts were found to occur.

Analysis of Proposed Project

The proposed Water Tank Project includes construction of the water tank anticipated in the 2006 Program EIR. No new significant population-generated impacts or a substantial increase in the severity of any prior public services impacts would occur.

Applicable Mitigation Measures from 2006 Program EIR

None.

Transportation and Traffic

2006 Program EIR Findings

Section 3.11 of the 2006 Program EIR evaluated transportation and traffic impacts resulting from development of the Specific Plan based on four traffic conditions in the 2007, 2012 and 2020 horizon years. The 2006 Program EIR concluded that project development would result in an increase in traffic in the project vicinity. The 2006 Program EIR further concluded that most impacts on traffic would be reduced to a less than significant level by roadway improvements identified as mitigation measures in the 2006 Program EIR, but impacts on roadways and intersections outside of the City's control would remain significant and unavoidable. Pursuant to Public Resources Code 21081 and CEQA Guidelines sections 15091 -15093, the City adopted a Statement of Overriding Considerations for the University District Project (Resolution No. 2006-142 adopted on May 23, 2006). The City concluded that specific economic, legal, social, technological, environmental and other considerations and benefits of the 2006 Project would independently outweigh the significant, adverse impacts identified in the 2006 Program EIR, and further concluded that each overriding consideration would independently warrant approval of the 2006 Project.

2014 Addendum Findings

The 2014 Addendum concluded that no changes or new information related to the intersection analysis methodology or in the determination of significance had occurred since the 2006 Program EIR was certified. The 2014 Addendum included an updated TJKM Final Report-Traffic Impact Study for University District LLC & Vast Oak Properties in the City of Rohnert Park, which evaluated the traffic conditions for four scenarios for 13 intersections.

The 2014 Addendum determined that although the 2014 Project changed the amount of development within each land use category, because the total amount of development did not increase from the approved Specific Plan, corresponding traffic volumes would not substantially increase as further discussed in the Traffic Report. Further, shifting the location of the commercial center/mixed use designated property to align with the Green Music Center was found to not result in changes in circulation.

The Traffic Report concluded that all impacts associated with the proposed Water Tank Project would be consistent with the 2006 Program EIR impact conclusions, and the report did not identify any new or substantially more severe traffic impacts as further discussed in the Updated Traffic Report for the existing conditions, 2012 and 2020 conditions.

The 2014 Addendum concluded that the 2014 Project would not result in a new impact related to transportation and traffic. No new significant traffic impacts or a substantial increase in the severity of any prior traffic impacts would occur.

Analysis of Proposed Project

The proposed Water Tank Project would result in construction of the water tank anticipated in the 2006 Program EIR. A temporary increase in traffic associated with vehicles and equipment accessing the site would occur during construction of the tank and associated improvements. Traffic on Petaluma Hill Road would temporarily be disrupted during construction of the water transmission mains. Safety and traffic circulation would be addressed in standard requirements through the issuance of an encroachment permit from Sonoma County. Ongoing maintenance of the public facility is expected to result in one trip to the water tank site per week.

Traffic mitigation measures in the 2006 Program EIR address specific improvements related to the development of the Specific Plan area and are not applicable to the water tank construction. No new significant traffic impacts or a substantial increase in the severity of any prior traffic impacts anticipated in the 2006 Program EIR would occur.

Applicable Mitigation Measures from 2006 Program EIR

None

Utilities and Service Systems

2006 Program EIR Findings

The 2006 Program EIR evaluated environmental impacts due to the increase in population growth related to utilities and services. Section 3.12 of the 2006 Program Draft EIR described the existing conditions for solid waste, energy, communications, and wastewater. The 2006 Program EIR found that the 2006 Project would have less than significant impacts for these services.

2014 Addendum Findings

The 2014 Addendum concluded that no new significant or substantially more severe impacts to utilities and services would occur as a result of the land use changes in the 2014 Project.

Analysis of Proposed Project

The proposed Water Tank Project would result in construction of the water tank anticipated in the 2006 Program EIR. No new significant growth-generated impacts or a substantial increase in the severity of any prior utilities impacts would occur.

Water Resources

2006 Program EIR Findings

The 2006 Program EIR evaluated drainage and hydrology impacts, water quality impacts and impacts due to increased water demand associated with the Specific Plan and found that increased demand for water to serve the 2006 Project after development would be able to be met by available water resources. The 2006 Program EIR further found that an increase in impervious surfaces due to the 2006 Project could result in increased runoff from the Specific Plan site and increased flows of potentially contaminated water into water bodies and groundwater in the area but that mitigation measures proposed in the 2006 Program EIR and project design, and the proposed detention basin in Vast Oak West, would reduce the impacts of the 2006 Project related to water to a less than significant level.

2014 Addendum Findings

Hydrology and Water Quality Regulatory Changes

The 2014 Project increased the size of the Vast Oak West water quality basin to assure that all hydrologic and storm drainage impacts were fully addressed while minimizing impacts to water quality in a manner contemplated in the 2006 Program EIR. The UDLLC property onsite basin mitigates the UDLLC development impacts and reduces the post-development, 10-year and 100-year flow rates. The proposed onsite detention basins would reduce peak runoff and capture flows, so that discharge would not exceed the existing stormwater system capacity as contemplated in the 2006 Program EIR. The Vast Oak and UDLLC projects were designed to provide for no net increase in peak stormwater discharge relative to current conditions in accordance with the 2006 Program EIR as discussed in the ENGEO Hydrology Reports. Development of the 2014 Project would occur within the same development footprint as the Specific Plan. The 2014 Addendum concluded that no new impacts or a substantial increase in the severity of the prior hydrology impacts would occur with implementation of the 2014 Project.

The 2014 Addendum described that water demand for the 2014 Project would be projected to be lower than projected in the 2006 Program EIR due to the reduced levels of development proposed. Development of the 2014 Project would occur within the same development footprint as the Specific Plan, with less development proposed. Sources of water were not proposed to be changed. The City concluded that sufficient water supply was available for the 2014 Project. Accordingly, the 2014 Addendum concluded the 2014 Project was consistent with the prior water supply analysis and no new impacts or a substantial increase in the severity of the prior water supply-related impacts would occur.

Analysis of Proposed Project

As discussed in the Project Description, on-site drainage improvements around the tank site would include precast concrete drop inlets, 18-inch reinforced concrete piping, valley gutters, and ditches necessary for collecting and conveying localized on-site rainfall and emergency tank overflow safely down the hillside and across the arch culvert to a suitable location at the base of the hill.

A Storm Water Pollution Prevention Plan (SWPPP) prepared by a Qualified SWPPP Developer (QSD) would be provided and implemented by the Contractor prior to and during construction as required by the Construction General Permit Order 2009-0009-DWQ. The SWPPP would provide the selection and implementation of specific Best Management Practices (BMPs) necessary to eliminate or reduce the discharge of pollutants due to construction, but would likely include a stabilized construction entrance/exit, straw wattles, silt fencing, sediment traps, sediment bags, seeding, mulching, soil stabilization, and other erosion, sediment, tracking, wind erosion, and non-storm water control measures.

With implementation of a SWPPP and compliance with applicable mitigation measures from the 2006 Program EIR, water resources impacts would remain less than significant. No new significant water resources impacts or a substantial increase in the severity of any prior water resources impacts would occur.

Applicable Mitigation Measures from 2006 Program EIR

Mitigation Measure WR-1a: Implement Recommendations of Storm Water Quality Management Plan and Storm Drainage Detention Analysis

The measures identified in the storm water quality management plan and storm drainage detention analysis shall be implemented to reduce runoff and to capture flows so that the existing stormwater system's capacity is not exceeded. As a performance standard, measures to be implemented from those reports shall provide for no net increase in peak stormwater discharge relative to current conditions, and ensure that 100-year flooding and its potential impacts are maintained at or below current levels. The project will implement measures provided in the report.

Prior to approving specific development projects, the City will require that project applicants demonstrate that their project is consistent with the recommendations and conclusions of these reports and will implement the measures identified in the reports. If the reports do not adequately address the drainage impacts of the specific development, the City will require applicants to prepare additional analysis and incorporate measures consistent with the scope and performance standards associated with the reports to ensure that drainage and flooding impacts are avoided.

Mitigation Measure WR-2b: Best Management Practices to Maximize Stormwater Quality

The storm water quality management plan and storm drainage detention analysis described above in Mitigation Measure WR-1a will include BMPs to maximize stormwater quality, and meet the University District Specific Plan requirement that a significant water quality treatment program is implemented. The BMPs will include a combination of source control, structural improvements, and treatment systems to the extent required to ensure compliance with the CWA and regulations noted above.

BMPs may include but not be limited to the following:

- A dry detention basin(s), which is typically dry except after a major rainstorm when it will temporarily fill with stormwater, designed to decrease runoff during storm events, prevent flooding, and allow for off-peak discharge. Basin features shall include maintenance schedules for periodic removal of sedimentation, excessive vegetation, and debris that may clog basin inlets and outlets.

- Grass strips, high infiltration substrates, and grassy swales shall be used where feasible throughout the project site to reduce runoff, serve as biofilters, and provide initial stormwater treatment. This type of treatment would apply particularly to parking lots.

- Physical devices shall be placed at outlets of pipes and channels to reduce the velocity or the energy of exiting water. Outlet protection helps to prevent scour and to minimize the potential for downstream erosion by reducing the velocity or energy of concentrated stormwater flows.

- Pervious/porous pavement shall be used to reduce runoff when economically feasible. The pavement is a unique cement-based concrete product that has a porous structure that allows rainwater to pass directly through the pavement and into the soil.

The City, its contractors, and/or applicants for specific development projects within the University District Specific Plan area shall select a combination of BMPs that is expected to minimize runoff flows and remove contaminants from stormwater discharges. The final selection and design of BMPs shall provide maximum contaminant removal, represent the best available technology that is economically achievable, and shall explicitly identify the expected level of effectiveness at contaminant removal.

The City and/or its contractors shall inspect following construction to ensure that all identified BMPs have been properly installed. The project shall adopt a regular maintenance and monitoring schedule to ensure that these BMPs function properly during project operations. If necessary, the City shall require that additional BMPs be designed and implemented if those originally constructed do not achieve the identified performance standard.

Mitigation Measure WR-4a: Implement a Spill Prevention and Control Program

The City, its contractors, and/or applicants for specific development projects within the University District Specific Plan area shall develop and implement a spill prevention and control program to minimize the potential for, and effects from, spills of hazardous, toxic, or petroleum substances during construction activities. The program shall be completed before any construction activities begin as part of the process to obtain the required NPDES General Permit. Implementation of this measure would comply with state and federal water quality regulations and reduce the impact to a less than significant level.

The federal reportable spill quantity for petroleum products, as defined in 40 CFR 110 is any oil spill that 1) violates applicable water quality standards, 2) causes a film or sheen upon or discoloration of the water surface or adjoining shoreline, or 3) causes a sludge or emulsion to be deposited beneath the surface of the water or adjoining shorelines.

Mitigation Measure WR-4b: Implement Measures to Maintain Groundwater or Surface Water Quality

If an appreciable spill has occurred and results determine that project activities have adversely affected surface or groundwater quality, the City shall be responsible for ensuring that a detailed analysis will be performed by a registered environmental assessor to identify the likely cause of contamination. This analysis will conform to American Society for Testing and Materials standards, and will include recommendations for reducing or eliminating the source or mechanisms of contamination. Based on this analysis, the City, its contractors, and/or applicants for specific development projects within the University District Specific Plan area will select and implement measures to control contamination, with a performance standard that groundwater quality must be returned to baseline conditions. These measures will be subject to approval by the City.

Cumulative Impacts

2006 Program EIR Findings

The 2006 Program EIR evaluated cumulative impacts associated with the 2006 Project. The cumulative analysis in the 2006 Program EIR evaluated the cumulative effects on specific resources, including loss of open space, aesthetic impacts, conversion of agricultural lands, air quality, biological resources, land use impacts, noise, population-generated impacts to utilities and services, transportation and traffic, and water resources. The cumulative impact analysis evaluated the combined impacts of past, present, and reasonably foreseeable projects in conjunction with the Specific Plan. The 2006 Program EIR cumulative project list included development of the Specific Plan Areas outlined in the City' General Plan and site development within the vicinity of the Specific Plan.

The 2006 Program EIR concluded that there could potentially be cumulative impacts from the development of the 2006 Project when combined with foreseeable development projects through the year 2020. The 2006 Program EIR included appropriate measures to reduce cumulative impacts, although significant unavoidable impacts related to loss of open space, conversion of agricultural lands, air quality, biological resources, land use, noise and traffic remained.

2014 Addendum Findings

As described in the 2014 Addendum, development of the 2014 Project would occur within the same development footprint as the Specific Plan, with slightly reduced levels of construction of residential units and a reduction in the size of the mixed use/commercial center. In some cases, the cumulative impacts would decrease due to the reduction in the project size and the commensurate reduction in population and associated trip generation. For example, cumulative air quality impacts would be less than the Specific Plan due to the reduction in trip generation. For all cumulative impacts, the 2014 Project would not have any new impacts or a substantial increase in the severity of the prior cumulative impacts.

Analysis of Proposed Project

As previously discussed, the Project would construct the water tank anticipated in the 2006 Program EIR. The water tank development would occur on the same site and within a similar development footprint to that evaluated in the Specific Plan. For all cumulative impacts, the water tank project would not have any new impacts or a substantial increase in the severity of the prior cumulative impacts.

VI. CONCLUSION

Based on the City of Rohnert Park's evaluation of the Water Tank Project, there are no substantial changes to the project, no substantial changes in circumstances, or new information for all environmental impact categories, as examined throughout this Addendum, that indicates that the proposed Water Tank Project would result in a new or substantially more severe impact than that disclosed in the 2006 Program EIR and 2014 Addendum. The City of Rohnert Park has determined that an addendum is the appropriate CEQA documentation in accordance with CEQA Guidelines Section 15164. An addendum need not be circulated for public review. The decision-making body shall consider this addendum with the 2006 Program EIR and 2014 Addendum before making a decision on the Water Tank Project (CEQA Guidelines sec. 15164).

VII. REFERENCES

City of Rohnert Park, 2006 (March). *Final Environmental Impact Report for the University District Specific Plan* (State Clearinghouse # #2003122014).

City of Rohnert Park, 2014 (February) Addendum. CEQA Addendum. *Evaluation of Proposed Amendments to the University District Specific Plan*.

ENGEO, 2005 (April 22). *Geotechnical Exploration; Anderson 128 Property, Water Reservoir; Rohnert Park, California; Project No. 5716.100.701*.

ENGEO, 2006 (August 22). *Geotechnical Exploration; Anderson 128 Property, Water Reservoir Access Road; Rohnert Park, California; Project No. 5716.100.701*.

ENGEO, 2014 (August 29). *Updated Seismic Design Criteria; Tank 8 Schedule B; Rohnert Park, California; Project No. 5716.100.101.*

ENGEO, 2016 (August 18). *Letter re: Summary of Geotechnical Documents*.

Ted Winfield & Associates, 2016 (July 26). *Preliminary Advisory Assessment Waters of the United States Anderson 53 Site Petaluma Hill Road (East Side) Sonoma County, CA.*

Ted Winfield & Associates, 2016 (August 5). *Letter re: Anderson 53 California Tiger Salamander and Endangered Plants.*

TABLE 1

Summary of Impacts and Mitigation Measures

The following table summarizes the impacts and mitigation measures from the 2006 Program Environmental Impact Report ("EIR") prepared for the University District Specific Plan ("Specific Plan") Project and the 2016 Addendum prepared for the proposed University District Water Tank (City Tank # 8) Project ("Water Tank Project", "Proposed Project", or "Project").

Impact	2006 Program EIR Significance without Mitigation	Proposed Project Significance without Mitigation	Explanation	2006 Program EIR Significance with Mitigation	Proposed Project Significance with Applicable Mitigation
Aesthetics					
AES-1: Obstruct or Adversely Affect Scenic Vistas or Change Visual Character during Construction	Significant	Less than significant	The 2006 Program EIR concluded that construction impacts for the Specific Plan area would be less than significant for all viewers other than residents of Redwood Park Estates and significant for residents of Redwood Park Estates. The EIR further concluded that, given the distance from Petaluma Hill Road (nearly 0.5 mile) and lack of vegetation removal, construction of the water tank would be unlikely to be noticeable to viewers on Petaluma Hill Road, the nearest viewpoint. The EIR further concluded that this impact would be less than significant for the water tank component of the project. No new aesthetic impacts or a substantial increase in the severity of the EIR impacts related to scenic vistas or change in visual character would occur under the Proposed Project.	Less than significant with AES-1a: Install Temporary Visual Barriers between Construction Zones and Residences at Redwood Park Estates	Less than significant No mitigation is required
AES-2: Obstruct or Adversely Affect Scenic Vistas or Change Visual Character during Operation	Less than significant	Less than significant	This impact was found to be less than significant in the 2006 Program EIR. Construction of the proposed water tank, which was anticipated in the 2006 Program EIR, would not be expected to increase impacts related to scenic vistas or changes in visual character. As discussed in the 2016 Addendum, the Proposed Project would not result in any new significant impacts nor would it result in a substantial increase in the severity of the visual and aesthetic impacts previously identified for the 2006 Specific Plan and 2014 Addendum.	Less than significant No mitigation is required	Less than significant No mitigation is required
AES-3: Substantially	Significant	Less than Significant	The 2006 Program EIR found that implementation of the Specific Plan would permanently alter scenic resources and	Significant and unavoidable	Less than significant

Impact	2006 Program EIR Significance without Mitigation	Proposed Project Significance without Mitigation	Explanation	2006 Program EIR Significance with Mitigation	Proposed Project Significance with Applicable Mitigation
Damage Scenic Resources, Including, but not limited to, Trees, Rock Outcroppings, and Historic Buildings along a Scenic Highway During Construction and Operation			concluded that the impact would be Significant and Unavoidable. However, the EIR concluded that the offsite water tank would be built with minimal vegetation removal and no tree removal, and found that the water tank would not create a significant impact on scenic resources. No new impacts or a substantial increase in the severity of the prior scenic resources impacts included in the 2006 Program EIR would be expected to result from implementation of the Proposed Project.	No further mitigation is feasible	No mitigation is required
AES-4: Create Temporary Sources of Light and Glare during Construction	Less than significant	Less than significant	The 2006 Program EIR concluded construction activities would not create new sources of light and/or glare. Construction of the water tank was anticipated in the 2006 Program EIR. No new impacts or a substantial increase in the severity of the prior light and glare impacts during construction would be expected to result from the Proposed Project.	Less than significant No mitigation is required	Less than significant No mitigation is required
AES-5: Create Permanent Sources of Light and Glare	Significant	Less than significant	The 2006 Program EIR concluded that the implementation of the Specific Plan would result in permanent new sources of light. Development of the water tank was anticipated with the 2006 Project. The Proposed Project would include motion activated lighting. Implementation of EIR Mitigation Measure AES-5a, which requires new lighting design to be shielded and directed downward in compliance with City of Rohnert Park standards, would ensure that any impacts associated with the proposed new lighting for the Water Tank Project would remain less than significant.	Less than significant with AES-5a: Require Lighting Design to be Shielded and Directed Downward in Compliance with City Standards	Less than significant with AES-5a
AES-6: Conflict with Local Policies	Less than significant	Less than significant	The 2006 Program EIR concluded the Specific Plan was consistent with aesthetic, scenic corridor and lighting policies. The construction of the water tank was anticipated in the 2006 Program EIR. Therefore, the Proposed Project would also be consistent with aesthetic, scenic corridor and lighting policies. No new impacts or a substantial increase in the severity of the	Less than significant No mitigation is required	Less than significant No mitigation is required

Impact	2006 Program EIR Significance without Mitigation	Proposed Project Significance without Mitigation	Explanation	2006 Program EIR Significance with Mitigation	Proposed Project Significance with Applicable Mitigation
			prior aesthetic impacts would be expected to occur with implementation of the Proposed Project.		
Agricultural Resources, Land Use and Planning					
AG-1: Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to Non-Agricultural Use	No impact	No impact	The 2006 Program EIR concluded development of the 2006 Project would not convert prime farmland, unique farmland, or farmland of statewide importance to non-agricultural use. Development of the water tank was anticipated in the 2006 Program EIR, and therefore would not affect any additional land. Therefore, no new impacts or a substantial increase in the severity of any prior agricultural-related impacts would be expected to occur with implementation of the Proposed Project.	No impact No mitigation is required	No impact No mitigation is required
AG-2: Conflict with Existing Zoning for Agricultural Use or a Williamson Act Contract—University District Specific Plan Area	No impact	No impact	The 2006 Program EIR concluded development of the 2006 Project would not conflict with agricultural zoning or with Williamson Act Contracts as it relates to buildout of the Specific Plan. Development of the water tank is assessed in Impact AG-2. No new impacts or a substantial increase in the severity of the prior agricultural-related impacts would occur with implementation of the Proposed Project.	No impact No mitigation is required	No impact No mitigation is required
AG-3: Conflict with Existing Zoning for Agricultural Use or a Williamson Act Contract—Offsite Water Tank Site	Potentially significant	Potentially significant	The 2006 Program EIR concluded development of the 2006 Project would require filing of notices of non-renewal of the Williamson Act Contract on the water tank site. The project proposes to construct the water tank anticipated in the 2006 Program EIR. The proposed revision to Mitigation Measure AG-3a would require a cancellation, rather than filing notice of non-renewal, for the water tank property subject to the Williamson Act contract. Implementation of Mitigation Measure AG-3a, as clarified, would ensure that the Proposed Project remains consistent with the EIR and no new impacts or a substantial increase in the severity of the prior agricultural-related impacts would occur.	Less than significant with AG-3a: File Notices of Non-Renewal for Williamson Act Contracts	Less than significant with Clarified AG-3a: Cancellation of Williamson Act Contracts
AG-4: Conversion	Significant	Less than	The 2006 Program EIR concluded development of the 2006	Significant and	Less than

Impact	2006 Program EIR Significance without Mitigation	Proposed Project Significance without Mitigation	Explanation	2006 Program EIR Significance with Mitigation	Proposed Project Significance with Applicable Mitigation
of Farmland to Non-Agricultural Use		significant	Project would convert farmland to non-agricultural use and determined that this impact would be Significant and Unavoidable. However, the 2006 Program EIR concluded that construction the offsite water tank, which would take place on a hillside above lands used for grazing, would not convert farmland to other uses. Grazing uses could continue to occur around the water tank. Therefore, no new impacts or a substantial increase in the severity of any prior agricultural-related impacts would be expected to occur with implementation of the Proposed Project.	unavoidable No mitigation is feasible	significant No mitigation is required
LUP-1: Loss of Community Cohesion	Less than significant	Less than significant	The 2006 Program EIR concluded development of the 2006 Project would not impact an existing community but, would impact only vacant and previously farmed lands. The 2006 Program EIR also found that construction of the water tank would not interfere with grazing on the water tank site. The Proposed Project would construct the water tank anticipated in the 2006 Program EIR and would affect no other lands. Therefore no new impacts or a substantial increase in the severity of any prior land use impacts would occur.	Less than significant No mitigation is required	Less than significant No mitigation is required
LUP-2: Conflict with Relevant Plans and Policies	Less than significant	Less than significant	The 2006 Program EIR concluded development of the 2006 Project would not conflict with adopted plans and policies for the project area, and the 2006 Project would be consistent with the General Plan. The Proposed Project would construct the water tank anticipated in the 2006 Program EIR and would not result in any new conflicts with relevant plans and policies.	Less than significant No mitigation is required	Less than significant No mitigation is required
LUP-3: Conflict with Conservation Plans	No impact	No impact	No conservation plans affecting the site were identified in the 2006 Program EIR and none have been adopted for the site since 2006. Consequently, no new impacts or a substantial increase in the severity of any prior land use impacts would occur with the Proposed Project.	No impact No mitigation is required	No impact No mitigation is required
LUP-4: Construction-	Less than	Less than	The 2006 Program EIR determined that the seven phases of development could cause potential temporary construction-	Less than significant	Less than

Impact	2006 Program EIR Significance without Mitigation	Proposed Project Significance without Mitigation	Explanation	2006 Program EIR Significance with Mitigation	Proposed Project Significance with Applicable Mitigation
Related Effects on Existing Land Uses	significant	significant	related impacts to adjacent land uses. This impact was found to be less than significant in the 2006 Program EIR. Development of the water tank would occur within the 2006 development footprint. Accordingly, no new impacts or a substantial increase in the severity of any prior land use impacts would occur following adoption of the Proposed Project.	No mitigation is required	significant No mitigation is required
LUP-5: Compatibility with Existing or Future Adjacent Land Uses	Less than significant	Less than significant	The 2006 Program EIR concluded that construction of the water tank and associated pipeline and road would not preclude the existing grazing use of the property. For that reason, the EIR further concluded that the water tank element of the project would not affect existing land uses. Accordingly, no new impacts or a substantial increase in the severity of any prior land use compatibility impacts would be expected to occur following adoption of the Proposed Project.	Less than significant No mitigation is required	Less than significant No mitigation is required

Impact	2006 Program EIR Significance without Mitigation	Proposed Project Significance without Mitigation	Explanation	2006 Program EIR Mitigation Measures and Significance	Proposed Project Significance with Applicable Mitigation
Air Quality					
Impact AQ-1: Significant Emissions of Pollutants from Construction of Buildings (Residential and Commercial) for Proposed	Significant	Potentially significant	The 2006 Program EIR concluded construction of the 2006 Project would result in significant air pollutant emissions. The Proposed Project, including the site development footprint, remain consistent with the assumptions included for the water tank in the Specific Plan and 2014 Project. Therefore, the impact analyses and conclusions from the 206 Program EIR and 2014 Addendum for air quality and GHG and climate change would still be applicable. Implementation of the 2006 Program EIR Mitigation AQ 1-a and AQ 1-b, which require	Less than significant with AQ-1a: Minimize Dust Emissions and Ensure Consistency with Bay Area Air Quality Management District Guidelines for Reducing	Less than significant with AQ-1a and AQ-1b

Impact	2006 Program EIR Significance without Mitigation	Proposed Project Significance without Mitigation	Explanation	2006 Program EIR Significance with Mitigation	Proposed Project Significance with Applicable Mitigation
Development of the University District Specific Plan			that the project ensure consistency with BAAQMD guidelines for reducing construction impacts, would ensure that construction related air quality impacts remain less than significant. No new significant construction-related air quality impacts or a substantial increase in the severity of any prior construction air quality impacts would be expected to occur with implementation of the Proposed Project.	Construction Impacts and AQ-1b: Implement Additional Control Measures to Minimize Construction-Related Emissions of Criteria Pollutants	
Impact AQ-2: Operational Increases in Emissions beyond Bay Area Air Quality Management District Threshold Levels	Significant	Less than significant	The 2006 Program EIR concluded development of the 2006 Project would result in significant ROG, NOx, CO and PM10 emissions associated with vehicular traffic and area source emissions. The Proposed Project would construct the water tank anticipated in the 2006 Program EIR. No new significant operational air quality impacts or a substantial increase in the severity of any prior air quality impacts would be expected to occur with implementation of the Proposed Project.	Less than significant with AQ-2a: Utilize Measures Identified in URBEMIS 2002 Model to Minimize Air Pollutant Emissions Associated with the Proposed Projects	Less than significant No mitigation is required
Impact AQ-3: Localized Increases in Carbon Monoxide Concentrations at Intersections Affected by the University District Specific Plan Development	Less than significant	No impact (not applicable to Proposed Project)	The 2006 Program EIR found that the 2006 Project would result in increased CO concentrations, but the increases were less than significant. The Proposed Project would construct the water tank anticipated in the 2006 Program EIR. No new significant operations-related air quality impacts or a substantial increase in the severity of any prior air quality impacts would be expected to occur with implementation of the Proposed Project.	Less than significant No mitigation is required	No impact (not applicable to Proposed Project) No mitigation is required
Impact AQ-4: Creation of Objectionable Odors by Sources Associated with the University District	Less than significant	Less than significant	The 2006 Program EIR found that the 2006 Project would not cause odor impacts. Because the Proposed Project would construct the water tank anticipated in the 2006 Program EIR and would not include any new or different land uses, there would be no change in this impact. No new significant odor impacts or a substantial increase in the severity of any prior	Less than significant No mitigation is required	Less than significant No mitigation is

Impact	2006 Program EIR Significance without Mitigation	Proposed Project Significance without Mitigation	Explanation	2006 Program EIR Significance with Mitigation	Proposed Project Significance with Applicable Mitigation
Specific Plan			odor impacts would be expected to occur with implementation of the Proposed Project.		required
Impact AQ-5: Inconsistency with the 2000 Clean Air Plan Caused by Growth Associated with the University District Specific Plan	Significant	Less than significant	The 2006 Program EIR concluded that the 2006 Specific Plan would be inconsistent with the 2000 Clean Air Plan due to increased vehicle mile traveled (VMT) with the City of Rohnert Park General Plan and the 2006 Project. The 2006 Program EIR determined that the inconsistency with the 2000 Clean Air Plan would result in a significant and unavoidable impact. No new significant operations-related air quality impacts or a substantial increase in the severity of any prior air quality impacts would be expected to occur with implementation of the Proposed Project.	Significant and unavoidable No mitigation is available	Less than significant No mitigation is required
Climate Change and GHG	Less than Significant	Less than significant	The 2014 Addendum included an updated Air Quality study that quantified GHG resulting from the approved Specific Plan and the 2014 Project and concluded that operation of the 2014 Project would not generate GHG emissions, either directly or indirectly, that would have a significant impact on the environment or conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. The 2014 Addendum included no changes to the proposed water tank anticipated in the Specific Plan. Therefore, conclusions reached in the 2014 regarding GHG emissions would be applicable to the entire Specific Plan, including the proposed Water Tank Project. No new significant operations-related air quality impacts or a substantial increase in the severity of any climate change and GHG impacts would be expected to occur with implementation of the Proposed Project.	Less than significant No mitigation is required	Less than significant No mitigation is required
Biological Resources					
Impact BIO-1: Direct Loss of Approximately 17.69 Acres of	Less than significant	Less than significant	The 2006 Program EIR concluded project construction within the Specific Plan area would result in the direct loss of waters of the U.S. and waters of the state. The 2006 Program EIR concluded that construction of the potable water tank would	Less than significant No mitigation is	Less than significant

Impact	2006 Program EIR Significance without Mitigation	Proposed Project Significance without Mitigation	Explanation	2006 Program EIR Significance with Mitigation	Proposed Project Significance with Applicable Mitigation
Waters of the United States (Including Wetlands) and 6.68 Acres of Waters of the State			result in the loss of 0.06 acre of waters of the United States. Since certification of the 2006 Program EIR, wetlands mitigation was completed both on and off the project site and a riparian restoration plan was prepared. The updated preliminary advisory assessment prepared by Ted Winfield & Associates for the proposed water tank project found that approximately 0.568 acre, not including the Copeland Creek channel, meets the Corps definition of waters of the U.S. Another approximately 0.81 acre consisted of a swale with marginal jurisdictional features and may not be subject to the Corps' jurisdiction. The project, as proposed, includes elements to ensure that no impacts to wetlands would occur with construction or operation of the water tank. No new impacts or a substantial increase in the severity of the prior wetlands-related impacts would be expected to occur with implementation of the Proposed Project.	required	No mitigation is required
BIO-2: Direct Loss of Approximately 0.06 Acre of Jurisdictional Seasonal Wetlands for Construction of the Potable Water Pipeline and Access Road	*The discussion of this impact was combined with Impact BIO-1 in the 2006 Program EIR*	---	---	---	---
BIO-3: Potential Loss of Waters of the United States, Including Wetlands, on the Abu-Halawa, Gee, and Cotati-	Potentially significant	No impact (not applicable to Proposed Project)	The 2006 Program EIR concluded project construction within the Specific Plan area would result in the direct loss of waters of the U.S. and waters of the state. Refer to Impact BIO-1 for a discussion of wetlands-related impacts associated with the Proposed Project.	Less than significant with BIO-3a: Conduct a Wetlands Evaluation Prior to Development of the Abu-Halawa, Gee,	No impact (not applicable to Proposed Project)

Impact	**2006 Program EIR Significance without Mitigation**	**Proposed Project Significance without Mitigation**	**Explanation**	**2006 Program EIR Significance with Mitigation**	**Proposed Project Significance with Applicable Mitigation**
Rohnert Park Unified School District Properties				and Cotati-Rohnert Park Unified School District Properties	No mitigation required
BIO-4: Disturbance of Riparian Vegetation	Less than significant	Less than significant	The 2006 Program EIR concluded that construction within the Specific Plan area could impact riparian vegetation along Copeland and Hinebaugh Creeks but that measures included in the project would ensure that the impact was less than significant. Since the 2006 Program EIR was certified, wetlands mitigation has been completed on the Anderson 48 site and the scenic corridor on the Vast Oak East site. A riparian restoration plan has been prepared. A temporary bridge crossing was installed over Hinebaugh Creek in 2007 and has been removed. Development of the Proposed Project would occur within a similar development footprint as the 2006 Project. The Proposed Project would construct the water tank anticipated in the 2006 Program EIR. No new impacts or a substantial increase in the severity of the prior impacts to riparian vegetation would be expected to occur with implementation of the Proposed Project.	Less than significant No mitigation is required	Less than significant No mitigation is required
BIO-5: Potential Disturbance of Riparian Habitat during Construction	Potentially significant	Less than significant	The 2006 Program EIR concluded that construction within the Specific Plan area could impact riparian vegetation along Copeland and Hinebaugh Creeks. Development of the Proposed Project would occur within a similar development footprint as the 2006 Project. The Proposed Project would construct the water tank anticipated in the 2006 Program EIR. No new impacts or a substantial increase in the severity of the prior impacts to riparian vegetation would be expected to occur with implementation of the Proposed Project.	Less than significant with BIO-5a: Install Construction Barrier Fencing to Protect Sensitive Biological Resources Adjacent to the Construction Zone	Less than significant
BIO-6: Potential Disturbance of Oak Woodland	Significant	No impact (not applicable to Proposed Project – refer to Impact BIO-	Refer to Impact BIO-7 for a discussion of oak woodland impacts associated with construction of the water tank.	Less than significant with BIO-6a: Protect Oak Trees to be Preserved	No impact (not applicable to Proposed Project –

Impact	2006 Program EIR Significance without Mitigation	Proposed Project Significance without Mitigation	Explanation	2006 Program EIR Significance with Mitigation	Proposed Project Significance with Applicable Mitigation
		7)			refer to Impact BIO-7)
BIO-7: Potential Disturbance of Oak Woodland for Construction of the Potable Water Pipeline and Tank	Significant	Potentially significant	The 2006 Program EIR concluded construction on the water tank site and installation of the potable water line would potentially disturb oak woodland. Development of the proposed water tank project would occur within a similar development footprint as the 2006 Project. Implementation of Mitigation Measure BIO-5a and clarified Mitigation Measure BIO-6a from the 2006 Program EIR would ensure that no new impacts or a substantial increase in the severity of the prior impacts to oak woodland habitat would be expected to occur with implementation of the Proposed Project.	Less than significant with BIO-5a: Install Construction Barrier Fencing to Protect Sensitive Biological Resources Adjacent to the Construction Zone and BIO-6a: Protect Oak Trees to be Preserved	Less than significant with BIO-5a and Clarified BIO-6a
BIO-8: Potential Loss of Special-Status Plants	Potentially significant	Potentially significant	The 2006 Program EIR concluded project construction within the Specific Plan area would avoid impacts to Lobb's aquatic buttercup population on Vast Oak East, but could result in the potential loss of special status plant species on the CRPUSD, Gee, and Abu-Halawa portions of the Specific Plan. Development of the Proposed Project would occur within a similar development footprint as the 2006 project. As discussed in the Addendum, endangered plants known to occur in seasonal wetlands (vernal pools) on the Santa Rosa Plain are not expected to occur at the Anderson 53 site. Mitigation for impacts to wetlands, therefore, should not require plant mitigation following prescriptions of the PBO. No new impacts or a substantial increase in the severity of the prior impacts to special status plant habitat would be expected to occur with implementation of the Proposed Project.	Less than significant with BIO-8a: Conduct Special-Status Plant Surveys in the Cotati-Rohnert Park Unified School District, Gee, and Abu-Halawa Portions of the Study Area	Less than significant No mitigation is required
BIO-9: Disturbance of Central California Coast Steelhead and Degradation of Habitat	Significant	Significant	The 2006 Program EIR identified an approximately 1,700-foot reach of Copeland Creek as a potential steelhead migration corridor. Development of the Proposed Project would occur within a similar development footprint as the 2006 Project and would not impact a greater portion of	Less than significant with BIO-9a: Restrict Construction within Copeland Creek to the Summer Low- or	Less than significant No mitigation is

Impact	2006 Program EIR Significance without Mitigation	Proposed Project Significance without Mitigation	Explanation	2006 Program EIR Significance with Mitigation	Proposed Project Significance with Applicable Mitigation
			Copeland Creek. No new impacts or a substantial increase in the severity of the prior impacts to steelhead would be expected to occur with implementation of the Proposed Project.	No-Flow Period	required
BIO-10: Potential Disturbance of California Tiger Salamanders and Their Habitat	Significant	Potentially significant	The 2006 Program EIR identified the potential for impacts to the California tiger salamander (CTS). As discussed in the Addendum, based on the lack of observation of CTS at the Anderson 53 site or nearby areas, CTS are not likely to be present at the Anderson 53 site. The letter further concluded that based on the No Effect status for the Anderson 53 site in the Programmatic Biological Opinion (PBO) issued by the USFWS in 2007, CTS mitigation for activities at the Anderson 53 site should not be required.. No new impacts or a substantial increase in the severity of the prior impacts to CTS would be expected to occur with implementation of the Proposed Project.	Less than significant with BIO-10a: Contact U.S. Fish and Wildlife Service to Determine whether Protocol-Level Upland Surveys for California Tiger Salamander on the Abu-Halawa, Gee, and Cotati-Rohnert Park Unified School District Properties Are Warranted	Less than significant impact No mitigation is required
BIO-11: Potential Disturbance or Mortality of Foothill Yellow-Legged Frogs	Potentially significant	No impact (not applicable to the Proposed Project)	The 2006 Program EIR indicated foothill yellow-legged frogs are known to occur in Copeland Creek. Development of the Proposed Project would occur within a similar development footprint as the 2006 Project and would not impact Copeland Creek. No new impacts or a substantial increase in the severity of the prior impacts to foothill yellow-legged frogs would be expected to occur with implementation of the Proposed Project.	Less than significant with BIO-5a: Install Construction Barrier Fencing to Protect Sensitive Biological Resources Adjacent to the Construction Zone and BIO-9a: Restrict Construction within Copeland Creek to the Summer Low- or No-Flow Period	No impact (not applicable to the Proposed Project) No mitigation is required
BIO-12: Potential Disturbance or	Potentially significant	No impact (not applicable to	The 2006 Program EIR indicated Northwestern pond turtle are known to occur in Copeland Creek or Hinebaugh Creek.	Less than significant with BIO-12a:	No impact (not

Impact	**2006 Program EIR Significance without Mitigation**	**Proposed Project Significance without Mitigation**	**Explanation**	**2006 Program EIR Significance with Mitigation**	**Proposed Project Significance with Applicable Mitigation**
Mortality of Northwestern Pond Turtles		the Proposed Project)	Development of the Proposed Project would occur within a similar development footprint as the 2006 Project and would not be expected to impact any segments of Copeland or Hinebaugh Creeks. No impacts to Northwestern pond turtle would be expected to occur with implementation of the Proposed Project.	Conduct a Preconstruction Survey for Northwestern Pond Turtles in Suitable Uplands	applicable to the Proposed Project) No mitigation is required
BIO-13: Potential Loss or Disturbance of Breeding or Wintering Burrowing Owl	Significant	Potentially significant	The 2006 Program EIR concluded project construction within the Specific Plan area could potentially impact burrowing owl habitat. Development of the Proposed Project would occur within a similar development footprint as the 2006 Project. No new impacts or a substantial increase in the severity of the prior impacts to burrowing owl habitat would be expected to occur with implementation of the Proposed Project.	Less than significant with BIO-13a: Conduct Preconstruction Surveys for Active Burrowing Owl Burrows and Implement the California Department of Fish and Game Guidelines for Burrowing Owl Mitigation, if Necessary	Less than significant with BIO-13a
BIO-14: Potential Disturbance of Special-Status and Non-Special-Status Tree-, Shrub-, and Ground-Nesting Migratory Birds and Raptors	Potentially significant	Potentially significant	The 2006 Program EIR concluded project construction within the Specific Plan area could potentially impact special status and non-special status bird habitat and migratory birds. Development of the Proposed Project would occur within a similar development footprint as the 2006 Project. No new impacts or a substantial increase in the severity of the prior impacts to burrowing owl habitat would be expected to occur with implementation of the Proposed Project.	Less than significant with BIO-5a: Install Construction Barrier Fencing to Protect Sensitive Biological Resources Adjacent to the Construction Zone and BIO-14a: Avoid Disturbance of Tree-, Shrub-, and Ground-Nesting Special-Status and	Less than significant with BIO-5a and BIO 14-a

Impact	2006 Program EIR Significance without Mitigation	Proposed Project Significance without Mitigation	Explanation	2006 Program EIR Significance with Mitigation	Proposed Project Significance with Applicable Mitigation
				Non–Special-Status Migratory Birds	
BIO-15: Introduction or Spread of Noxious Weeds	Significant	Potentially significant	The 2006 Program EIR concluded project construction within the Specific Plan area could introduce the spread of noxious weeds. Development of the Proposed Project would occur within a similar development footprint as the 2006 project. No new impacts or a substantial increase in the severity of the prior impacts would be expected to occur with implementation of the Proposed Project.	Less than significant with BIO-15a: Avoid the Introduction or Spread of Noxious Weeds into Previously Uninfested Areas	Less than significant with BIO-15a
Cultural Resources					
C-1: Adverse Impacts on P-49-3158	Significant	No impact (not applicable to the Proposed Project)	The 2006 Program EIR concluded project construction within the Specific Plan area could result in potential adverse impacts to a late period archaeological site. Because the water tank site is located outside the Specific Plan area, this impact is not applicable to the Proposed Project.	Less than significant with C-1a: Establish a Monitoring Plan for P-49-3158	No impact (not applicable to the Proposed Project) No mitigation is required
C-2: Adverse Impacts on P-49-3157, P-49-3159, and P-49-2796	Significant	No impact (not applicable to the Proposed Project)	The 2006 Program EIR concluded construction within the Specific Plan area could result in potential adverse impacts to three other known prehistoric archaeological sites. Because the water tank site is located outside the Specific Plan area, this impact is not applicable to the Proposed Project.	Less than significant with C-2a: Conduct a Full Data Recovery Program	No impact (not applicable to the Proposed Project) No mitigation is required
C-3: Potential Adverse Impacts on Historic Structures	Potentially significant	No impact (not applicable to the Proposed	The 2006 Program EIR concluded construction within the Specific Plan area could result in potential adverse impacts to historic resources. Because the water tank site is located	Potentially significant and unavoidable with C-3a: Historic	No impact (not applicable to

Impact	2006 Program EIR Significance without Mitigation	Proposed Project Significance without Mitigation	Explanation	2006 Program EIR Significance with Mitigation	Proposed Project Significance with Applicable Mitigation
within the University District Specific Plan Area		Project)	outside the Specific Plan area, this impact is not applicable to the Proposed Project.	American Building Survey Recordation, Relocation, and Sympathetic Project Design	the Proposed Project) No mitigation is required
C-4: Potential Impacts on Archaeological Sites	Significant	No impact (not applicable to the Proposed Project)	The 2006 Program EIR concluded construction within the Specific Plan area could result in potential adverse impacts to archaeological sites. Because the water tank site is located outside the Specific Plan area, this impact is not applicable to the Proposed Project.	Less than significant with C-4a: Identify Archaeological Sites in the University District Specific Plan Area and Implement Further Measures	No impact (not applicable to the Proposed Project) No mitigation is required
C-5: Potential Impacts on Unidentified Buried Cultural Resources	Significant	Potentially significant	The 2006 Program EIR concluded construction within the Specific Plan area could result in potential adverse impacts to unidentified burial sites. Implementation of Mitigation Measure C-5a, as updated from the 2006 Program EIR would ensure that impacts related to inadvertent archaeological discoveries would remain less than significant.	Less than significant with C-5a: Implement a Monitoring Program for Buried Cultural Resources	Less than significant with Updated C-5a
Geology and Soils					
GEO-1: Substantial Adverse Effects Resulting from Surface Fault Rupture	No impact	No impact	The 2006 Program EIR indicated that it was very unlikely the 2006 Project be impacted by surface fault rupture. The Proposed Project does not include any operational activities that would create new environmental impacts or new construction methods that would result in any new or substantially more severe geologic or geotechnical impacts when compared to the impacts analyzed in the EIR. All improvements associated with the Proposed Project were anticipated in the 2006 Program EIR and would occur within	No impact No mitigation is required	No impact No mitigation is required

Impact	2006 Program EIR Significance without Mitigation	Proposed Project Significance without Mitigation	Explanation	2006 Program EIR Significance with Mitigation	Proposed Project Significance with Applicable Mitigation
			a similar development footprint evaluated in the 2006 Program EIR.		
GEO-2: Substantial Adverse Effects Resulting from Seismic Ground Shaking —University District Specific Plan Area	Potentially significant	No impact (not applicable to the Proposed Project)	The 2006 Program EIR indicated that the Specific Plan area could be impacted by seismic ground shaking. The Proposed Project does not include any construction or operational activities within Specific Plan footprint. Impacts related to geologic hazards on the offsite water tank are discussed in Impact GEO-5.	Less than significant with GEO-2a: Comply with Applicable Uniform Building Code Standards	No impact (not applicable to the Proposed Project) No mitigation is required
GEO-3: Substantial Adverse Effects Resulting from Liquefaction	No impact	No impact (not applicable to the Proposed Project)	The 2006 Program EIR indicated that it the 2006 Project would not be impacted by liquefaction. The Proposed Project does not include any construction or operational activities within the Specific Plan footprint. Impacts related to geologic hazards on the offsite water tank are discussed in Impact GEO-5.	No impact No mitigation is required	No impact (not applicable to the Proposed Project) No mitigation is required
GEO-4: Substantial Adverse Effects Resulting from Landslides and Other Types of Slope Failures	No impact	No impact	The 2006 Program EIR indicated that the 2006 Project would not be impacted by landslides or slope failure. The Proposed Project does not include any construction or operational activities within the Specific Plan footprint. Impacts related to geologic hazards on with the offsite water tank are discussed in Impact GEO-5.	No impact No mitigation is required	No Impact (not applicable to the Proposed Project) No mitigation is required
GEO-5: Substantial Adverse Effects Resulting from Geologic Hazards—	Potentially significant	Potentially significant	The 2006 Program EIR concluded construction on the water tank site and installation of the potable water line could result in potential off-site geologic hazards. Development of the Proposed Project would construct the	Less than significant with implementation of GEO-5a: Comply with	Less than significant with Clarified GEO-5a

Impact	2006 Program EIR Significance without Mitigation	Proposed Project Significance without Mitigation	Explanation	2006 Program EIR Significance with Mitigation	Proposed Project Significance with Applicable Mitigation
Offsite Water Tank Site			water tank anticipated in the 2006 Program EIR. No new impacts or a substantial increase in the severity of the prior geologic hazards due to the water tank construction would be expected to occur with implementation of the project.	Recommendations of Geotechnical Report for the Offsite Water Tank Site	
GEO-6: Construction-Related Soil Erosion and Sedimentation	Less than significant	Less than significant	The 2006 Program EIR indicated that the 2006 Project would result in less than significant erosion and sedimentation-related impacts. The EIR concluded that the impact would remain less than significant with implementation of City requirements including preparation and implementation of a SWPPP to gain coverage under and comply with the requirements of the General Permit issued by the SWRCB. The SWPPP will specify BMPs that will be implemented to control runoff, accelerated erosion, and sedimentation during construction. The Proposed Project would also prepare a SWPPP and specify BMPs to control runoff and erosion during construction.	Less than significant No mitigation is required	Less than significant No mitigation is required
GEO-7: Substantial Adverse Effects Resulting from Ground Settlement—University District Specific Plan Area	Significant	Significant	The 2006 Program EIR indicated that the 2006 Project could potentially be impacted by ground settlement. The Proposed Project does not include any operational activities within the Specific Plan footprint. Impacts related to geologic hazards on with the offsite water tank are discussed in Impact GEO-5.	Less than significant with GEO-7a: Process Native Topsoil Prior to Construction	No impact No mitigation is required
GEO-8: Substantial Adverse Effects Resulting from Expansive Soils—University District Specific Plan Area	Potentially significant	Potentially significant	The 2006 Program EIR indicated that the 2006 Project could be impacted by expansive soils. The Proposed Project does not include any operational activities within the Specific Plan footprint. Impacts related to geologic hazards on with the offsite water tank are discussed in Impact GEO-5.	Less than significant with GEO-8a: Design Foundations to Account for Expansive Soil Conditions	No impact No mitigation is required
Hazards and Hazardous Materials					
HAZ-1: Create a Significant Hazard to	Less than significant	Less than significant	The 2006 Program EIR indicated that the 2006 Project would result in less than significant impacts related to the	Less than significant No mitigation is	Less than significant

Impact	**2006 Program EIR Significance without Mitigation**	**Proposed Project Significance without Mitigation**	**Explanation**	**2006 Program EIR Significance with Mitigation**	**Proposed Project Significance with Applicable Mitigation**
the Public or the Environment through the Routine Transport, Use, or Disposal of Hazardous Materials			routine transport, use, or disposal of hazardous materials. The Proposed Project does not include any operational activities that would create new environmental impacts or new construction methods that would result in any new or substantially more severe hazardous materials when compared to the impacts analyzed in the 2006 Program EIR.	required	No mitigation is required
HAZ-2: Create a Significant Hazard to the Public or the Environment through Reasonably Foreseeable Upset and Accident Conditions Involving the Release of Hazardous Materials into the Environment	Potentially significant	Potentially significant	The 2006 Program EIR indicated that the 2006 Project could result in potentially significant impacts related to the reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. The Proposed Project does not include any operational activities that would create new environmental impacts or new construction methods that would result in any new or substantially more severe hazardous materials when compared to the impacts analyzed in the 2006 Program EIR. All improvements associated with the Proposed Project would occur within a similar development footprint evaluated in the 2006 Program EIR.	Less than significant with HAZ-2a: Follow City of Rohnert Park Fire Department and Other Guidelines for Storage and Handling of Hazardous Materials; HAZ-2b: Immediately Contain Spills, Excavate Spill-Contaminated Soil, and Dispose of It at an Approved Facility; HAZ-2c: Develop and Implement Plans to Reduce Exposure of People and the Environment to Hazardous Conditions during Construction Activities; HAZ-2d: Screen Surface Soils in the Project Area for Residuals from Agricultural Chemicals	Less than significant with HAZ-2a, HAZ-2b, and HAZ-2c

Impact	**2006 Program EIR Significance without Mitigation**	**Proposed Project Significance without Mitigation**	**Explanation**	**2006 Program EIR Significance with Mitigation**	**Proposed Project Significance with Applicable Mitigation**
				(Fertilizers and Pesticides); and HAZ-2e: Stockpile and Sample Excavated Soils	
HAZ-3: Emit Hazardous Emissions or Handle Hazardous or Acutely Hazardous Materials, Substances, or Waste within 0.25 Mile of an Existing or Proposed School	Potentially significant	No impact	The 2006 Program EIR indicated that the Project could result in a potentially significant impact related to hazardous emissions. The proposed water tank project is not located within 0.25 miles of an existing or proposed school nor does not include any operational activities that would create new environmental impacts or new construction methods that would result in any new or substantially more severe hazardous materials when compared to the impacts analyzed in the 2006 Program EIR. All improvements associated with the Proposed Project would occur within a similar development footprint evaluated in the 2006 Program EIR.	Less than significant with HAZ-2a: Follow City of Rohnert Park Fire Department and Other Guidelines for Storage and Handling of Hazardous Materials; HAZ-2b: Immediately Contain Spills, Excavate Spill-Contaminated Soil, and Dispose of It at an Approved Facility; HAZ-2c: Develop and Implement Plans to Reduce Exposure of People and the Environment to Hazardous Conditions during Construction Activities; HAZ-2d: Screen Surface Soils in the Project Area for Residuals from Agricultural Chemicals (Fertilizers and	No impact No mitigation is required

Impact	2006 Program EIR Significance without Mitigation	Proposed Project Significance without Mitigation	Explanation	2006 Program EIR Significance with Mitigation	Proposed Project Significance with Applicable Mitigation
				Pesticides); and HAZ-2e: Stockpile and Sample Excavated Soils	
HAZ-4: Located on a Site Included on a List of Hazardous Materials Sites Compiled Pursuant to California Government Code Section 65962.5	Less than significant	Less than significant	The 2006 Program EIR indicated that the 2006 Project would result in less than significant impacts related to the 2006 Project being located on a site included on a list of hazardous materials sites compiled pursuant to California Government Code Section 65962.5. The 2006 Program EIR concluded that there are no Federal National Priority List sites within the project area and indicated that remediation was completed on the one identified leaking underground storage tank (LUST) site within 0.5 miles of the Specific Plan site. The Proposed Project does not include any operational activities that would create new environmental impacts or new construction methods that would result in any new or substantially more severe hazardous materials when compared to the impacts analyzed in the EIR. No hazardous materials sites have been identified within the Specific Plan area since the 2006 Program EIR.	Less than significant No mitigation is required	Less than significant No mitigation is required
HAZ-5: Impair Implementation of, or Physically Interfere with an Adopted Emergency Response Plan or Emergency Evacuation Plan	Less than significant	Less than significant	The 2006 Program EIR indicated that the 2006 Project would result in less than significant emergency response related impacts. The Proposed Project does not include any operational activities that would create new environmental impacts or new construction methods that would result in any new or substantially more severe impacts when compared to the impacts analyzed in the 2006 Program EIR. All improvements associated with the Proposed Project would occur within a similar development footprint evaluated in the 2006 Program EIR.	Less than significant No mitigation is required	Less than significant No mitigation is required
HAZ-6: Expose People or Structures to a Significant Risk of	Potentially significant	Potentially significant	The 2006 Program EIR indicated that it the Specific Plan Project could result in potentially significant impacts related to exposure of people or structures to risks associated with	Less than significant with HAZ-6a: Before Construction Begins,	Less than significant with HAZ-6a

Impact	2006 Program EIR Significance without Mitigation	Proposed Project Significance without Mitigation	Explanation	2006 Program EIR Significance with Mitigation	Proposed Project Significance with Applicable Mitigation
Loss, Injury or Death Involving Wildland Fires			wildland fires. The Water Tank Project does not include any operational activities that would create new environmental impacts or new construction methods that would result in any new or substantially more severe hazards when compared to the impacts analyzed in the 2006 Program EIR. All improvements associated with the Proposed Project would occur within a similar development footprint evaluated in the 2006 Program EIR.	Clear Materials That Could Serve as Fire Fuel from Areas Slated for Construction Activities and HAZ-6b: Require that Spark-Generating Construction Equipment be Equipped with Manufacturers' Recommended Spark Arresters	and HAZ-6b
Noise					
N-1. Exposure of Existing Residential Uses and Future Residential Uses on the Project Site from Grading and Building Construction Activities	Significant	Less than significant	The 2006 Program EIR indicated that the 2006 Specific Plan Project would expose existing and future residents to construction-related noise impacts. No new significant construction-related noise impacts or a substantial increase in the severity of any prior construction noise impacts would be expected to occur as a result of the Proposed Project.	Less than significant with N-1a: Restrict Hours of Construction Activity; N-1b: Disseminate Essential Information to Residences and Implement a Complaint/Response Tracking Program; and N-1c: Locate Construction Equipment as Far Away from Residences as Feasible	Less than significant with N-1a, N-1b, and N-1c

Impact	**2006 Program EIR Significance without Mitigation**	**Proposed Project Significance without Mitigation**	**Explanation**	**2006 Program EIR Significance with Mitigation**	**Proposed Project Significance with Applicable Mitigation**
N-2: Exposure of Existing Residential Uses and Future Residential Uses on the Project Site from Construction-Period Groundborne Vibration	Less than significant	Less than significant	The 2006 Program EIR indicated that the Specific Plan Project would expose existing and future residents to groundborne construction-related vibration impacts. No new significant construction-related noise impacts or a substantial increase in the severity of any prior noise impacts would be expected to occur as a result of the Proposed Project.	Less than significant No mitigation is required	Less than significant No mitigation is required
N-3. Exposure of Offsite, Noise-Sensitive Land Uses to Increased Traffic Noise	Less than significant	Less than significant	The 2006 Program EIR found that the 2006 Project would result in increased traffic-generated noise levels, but the increases were less than significant. No new significant traffic-generated noise impacts or a substantial increase in the severity of any prior noise impacts would be expected to occur with implementation of the Proposed Project.	Less than significant No mitigation is required	Less than significant No mitigation is required
N-4 Exposure of New Noise-Sensitive Land Uses to Noise	Significant	Less than significant	The 2006 Program EIR found that the 2006 Project would result in a significant impact related to exposure of new noise-sensitive land uses to noise. No new significant noise impacts or a substantial increase in the severity of any prior noise impacts would be expected to occur as a result of the Proposed Project.	Less than significant with N-4a: Ensure that Noise Levels at Residential Outdoor Activity Areas Do Not Exceed 60 dB L_{dn} and N-4b: Apply Acoustical Insulation Treatments to Residential Units	Less than significant No mitigation is required
N-5: Exposure of Existing Offsite Noise-Sensitive Land Uses to Cumulative Traffic Noise	Significant	Less than significant	The 2006 Program EIR found that the 2006 Project would result in increased significant noise impacts to off-site noise-sensitive land uses. No new significant noise impacts or a substantial increase in the severity of any prior noise impacts would be expected to occur as a result of the Proposed Project.	Significant and unavoidable No feasible mitigation available	Less than significant No mitigation is required
Population and Housing					

Impact	**2006 Program EIR Significance without Mitigation**	**Proposed Project Significance without Mitigation**	**Explanation**	**2006 Program EIR Significance with Mitigation**	**Proposed Project Significance with Applicable Mitigation**
POP-1: Directly Induce Substantial Population Growth	Less than significant	Less than significant	The 2006 Program EIR evaluated environmental impacts due to the increase in population growth. The Proposed Project includes construction of the water tank anticipated in the 2006 Program EIR. No new significant impacts related to population growth or a substantial increase in the severity of any prior population-related impacts would be expected to occur as a result of the Proposed Project.	Less than significant No mitigation is required	Less than significant No mitigation is required
POP-2: Indirectly Induce Substantial Population Growth	Less than significant	Less than significant	The 2006 Program EIR evaluated environmental impacts due to the increase in population growth. The Proposed Project includes construction of the water tank anticipated in the 2006 Program EIR. No new significant impacts related to population growth or a substantial increase in the severity of any prior population-related impacts would be expected to occur as a result of the Proposed Project.	Less than significant No mitigation is required	Less than significant No mitigation is required
POP-3: Displace Substantial Numbers of Existing Housing	Less than significant	Less than significant	The 2006 Program EIR evaluated environmental impacts due to the displacement of substantial numbers of existing housing and concluded that the impacts would be less than significant. Development of the Proposed Project would occur within a similar development footprint as the 2006 Project. Accordingly, no new significant impacts or a substantial increase in the severity of any prior impacts related to displacement of housing would be expected to occur as a result of the Proposed Project.	Less than significant No mitigation is required	Less than significant No mitigation is required
POP-4: Displace Substantial Numbers of People	Less than significant	Less than significant	The 2006 Program EIR evaluated environmental impacts due to the displacement of substantial numbers of people and concluded that the impacts would be less than significant. Development of the Proposed Project would occur within a similar development footprint as the 2006 Project. Accordingly, no new significant impacts or a substantial increase in the severity of any prior impacts related to displacement of people would be expected to occur as a result of the Proposed Project.	Less than significant No mitigation is required	Less than significant No mitigation is required

Impact	2006 Program EIR Significance without Mitigation	Proposed Project Significance without Mitigation	Explanation	2006 Program EIR Significance with Mitigation	Proposed Project Significance with Applicable Mitigation
POP-5: Increase Availability of Housing	Beneficial	No impact (not applicable)	The 2006 Program EIR evaluated the beneficial impact related to the 2006 Project increasing the availability of housing. The Proposed Project does not include housing. The Proposed Project includes construction of the water tank anticipated in the 2006 Program EIR. This impact is not applicable to the Proposed Project.	Beneficial No mitigation is required	No impact (not applicable) No mitigation is required
Public Services					
PS-1: Increased Need for Police and Fire Facilities and Service	Less than significant	Less than significant	The 2006 Program EIR evaluated environmental impacts due to the increase in population growth triggering a corresponding demand for police and fire services. The Proposed Project would construct the water tank anticipated in the 2006 Program EIR. No new significant impacts related to police or fire facilities or services or a substantial increase in the severity of any prior police and fire services impacts would be expected to occur with implementation of the Proposed Project.	Less than significant No mitigation is required	Less than significant No mitigation is required
PS-2: Increased School Enrollment Associated with Buildout of University District Specific Plan	Significant	No impact	The 2006 Program EIR evaluated environmental impacts due to the 2006 Project's anticipated increase in student enrollment. The Proposed Project would construct the water tank anticipated in the 2006 Program EIR and would not result in increased school enrollment. No new significant impacts or a substantial increase in the severity of any prior school-related impacts would be expected to occur with implementation of the Proposed Project.	Less than significant with PS-2a: Payment of School Fees by Developer	No impact No mitigation is required

Impact	2006 Program EIR Significance without Mitigation	Proposed Project Significance without Mitigation	Explanation	2006 Program EIR Significance with Mitigation	Proposed Project Significance with Applicable Mitigation
PS-3: Increased Demand For Recreational Facilities Resulting in Substantial Adverse Environmental Impacts or Result in Substantially Accelerated Physical Deterioration	Less than significant	No impact	The 2006 Program EIR evaluated environmental impacts due to the Project's demand for parks and recreational services. Because park and recreation demand are largely driven by population, and the Proposed Project would generate lower levels of development overall, including fewer residential units, the Proposed Project would not generate higher levels of demand for parks and recreation. The Proposed Project would construct the water tank anticipated in the 2006 Program EIR. Therefore, no new significant parks and recreation-related impacts or a substantial increase in the severity of any prior impacts would occur with the Proposed Project	Less than significant No mitigation is required	No impact No mitigation is required
Transportation and Traffic					
2007 Plus Early Project Phase					
TRA -1: Increased Congestion at Sonoma State University Access upon Addition of Early Phase Project Traffic	Potentially significant	No impact (not applicable to Proposed Project)	The 2006 Program EIR concluded that the 2006 Specific Plan would increase congestion at Sonoma State University (SSU) access. This impact and the proposed mitigation measures in the 2006 Program EIR would not be changed as a result of the Proposed Project which involves construction of the offsite water tank. No new significant traffic impacts or a substantial increase in the severity of any prior traffic impacts would be expected to occur as a result of the Proposed Project.	Less than significant with TRA-1a: Add a Center Turn Lane on Rohnert Park Expressway Adjacent to Sonoma State University Access	No impact (not applicable to Proposed Project) No mitigation is required

Impact	2006 Program EIR Significance without Mitigation	Proposed Project Significance without Mitigation	Explanation	2006 Program EIR Significance with Mitigation	Proposed Project Significance with Applicable Mitigation
TRA-2: Impede Emergency Access in Early Phase	Less than significant	Less than significant	The 2006 Program EIR stated that "the University District Specific Plan would include an interconnected street network that would facilitate emergency access; it does not appear to include any design features that would adversely affect the maneuverability of emergency vehicles." This impact in the 2006 Program EIR would not be changed as a result of the Proposed Project which involves construction of the offsite water tank. No new significant traffic impacts or a substantial increase in the severity of any prior traffic impacts would be expected to occur as a result of the Proposed Project.	Less than significant No mitigation is required	Less than significant No mitigation is required
TRA-3: Disruption of Alternative Transportation Modes	Less than significant	No impact (not applicable to Proposed Project)	The 2006 Program EIR concluded that the 2006 Specific Plan would have a less than significant impact related to disruption of alternative transportation modes. The Specific Plan EIR concluded that the 2006 Project would not affect alternative transportation modes. This impact would not be changed as a result of the Proposed Project which involves construction of the offsite water tank anticipated in the 2006 Program EIR. No new significant traffic impacts or a substantial increase in the severity of any prior traffic impacts would be expected to occur as a result of the Proposed Project.	Less than significant No mitigation is required	Less than significant No mitigation is required
2012 Plus Project Buildout					
TRA-4: Unacceptable Level of Service at Snyder Lane/Keiser Avenue Intersection	Potentially significant	No impact (not applicable to the Proposed Project)	The 2006 Program EIR concluded that the 2006 Specific Plan could have a potentially significant impact on traffic levels of services at the Snyder Lane/Keiser Avenue intersection. The Proposed Project, which involves construction of the offsite water tank anticipated in the 2006 Program EIR, would not change the conclusion reached in the 2006 Program EIR for this impact.	Less than significant with TRA-4a: Install Traffic Signal at Snyder Lane/Keiser Avenue Intersection and TRA-4b: Widen Keiser Avenue Westbound Approach and Snyder Lane	No impact (not applicable to the Proposed Project) No mitigation is required

Impact	2006 Program EIR Significance without Mitigation	Proposed Project Significance without Mitigation	Explanation	2006 Program EIR Significance with Mitigation	Proposed Project Significance with Applicable Mitigation
TRA-5: Unacceptable Level of Service at Petaluma Hill Road/Keiser Avenue Intersection	Potentially significant	No impact (not applicable to the Proposed Project)	The 2006 Program EIR concluded that the 2006 Specific Plan could have a potentially significant impact on traffic levels of service at the Petaluma Hill Road/Keiser Avenue intersection. The Proposed Project, which involves construction of the offsite water tank anticipated in the 2006 Program EIR, would not change the conclusion reached in the 2006 Program EIR for this impact.	Less than significant with TRA-5a: Add Separate Left and Right Turn Lanes on Eastbound Keiser Avenue Approach and TRA-5b: Add a Center Turn Lane on Petaluma Hill Road Adjacent to Keiser Avenue	No impact (not applicable to the Proposed Project) No mitigation is required
TRA-6: Unacceptable Level of Service at Rohnert Park Expressway/Snyder Lane Intersection	Potentially significant	No impact (not applicable to the Proposed Project)	The 2006 Program EIR concluded that the 2006 Specific Plan could result in a potentially significant impact related to levels of service at the Rohnert Park Expressway/Snyder Lane intersection. The Proposed Project, which involves construction of the offsite water tank anticipated in the 2006 Program EIR, would not change the conclusion reached in the 2006 Program EIR for this impact.	Less than significant with TRA-6a: Widen Snyder Lane between Keiser Avenue and Southwest Boulevard; TRA-6b: Reconfigure Rohnert Park Expressway/Snyder Lane Intersection; and	No impact (not applicable to the Proposed Project) No mitigation is required
TRA-7: Unacceptable Level of Service at Rohnert Park Expressway/Sonoma State University Access Intersection	Potentially significant	No impact (not applicable to the Proposed Project)	The 2006 Program EIR concluded that the 2006 Specific Plan could result in a potentially significant impact related to levels of service at the Rohnert Park Expressway/Sonoma State University access intersection. The Proposed Project, which involves construction of the offsite water tank anticipated in the 2006 Program EIR, would not change the conclusion reached in the 2006 Program EIR for this impact.	TRA-7a: Install Traffic Signal or Roundabout at Rohnert Park Expressway/Sonoma State University Access Intersection	No impact (not applicable to the Proposed Project) No mitigation is required

Impact	**2006 Program EIR Significance without Mitigation**	**Proposed Project Significance without Mitigation**	**Explanation**	**2006 Program EIR Significance with Mitigation**	**Proposed Project Significance with Applicable Mitigation**
TRA-8: Unacceptable Level of Service at Rohnert Park Expressway/Petaluma Hill Road Intersection	Potentially significant	No impact (not applicable to the Proposed Project)	The 2006 Program EIR concluded that the 2006 Specific Plan could have a potentially significant impact on levels of services at the Rohnert Park Expressway/Petaluma Hill Road intersection. The Proposed Project, which involves construction of the offsite water tank anticipated in the 2006 Program EIR, would not change the conclusion reached in the 2006 Program EIR for this impact.	Less than significant with TRA-8a Add Southbound Right Turn Lane and Separate Eastbound Left and Right Turn Lanes at Rohnert Park Expressway/Petaluma Hill Road Intersection	No impact (not applicable to the Proposed Project) No mitigation is required
TRA-9: Increased Congestion at Adobe Road/Petaluma Hill Road in Penngrove	Significant	No impact (not applicable to the Proposed Project)	The 2006 Program EIR concluded that the 2006 Specific Plan would result in a significant and unavoidable impact related to increased congestion at the Adobe Road/Petaluma Hill Road intersection in Penngrove. The Proposed Project, which involves construction of the offsite water tank anticipated in the 2006 Program EIR, would not change the conclusion reached in the 2006 Program EIR for this impact.	Significant and unavoidable with TRA-9a: City of Rohnert Park Coordination with *Sonoma County Transportation Authority* and Sonoma County	No impact (not applicable to the Proposed Project) No mitigation is required
TRA-10: Impede Emergency Access at 2012 Buildout	Less than significant	No impact (not applicable to the Proposed Project)	The 2006 Program EIR stated that “the University District Specific Plan would include an interconnected street network that would facilitate emergency access; it does not appear to include any design features that would adversely affect the maneuverability of emergency vehicles.” The Proposed Project, which involves construction of the offsite water tank anticipated in the 2006 Program EIR, would not change the conclusion reached in the 2006 Program EIR for this impact.	No mitigation is required	No impact (not applicable to the Proposed Project) No mitigation is required

Impact	**2006 Program EIR Significance without Mitigation**	**Proposed Project Significance without Mitigation**	**Explanation**	**2006 Program EIR Significance with Mitigation**	**Proposed Project Significance with Applicable Mitigation**
TRA-11: Provision of Access Control on Rohnert Park Expressway at 2012 Scenario	Potentially significant	No impact (not applicable to the Proposed Project)	The 2006 Program EIR evaluated the Project's potential impact to the provision of access control on Rohnert Park Expressway and concluded that approval of access plans, as described in Mitigation Measure TRA-11a, would reduce the impact to a less than significant level. The 2014 Addendum concluded that, with the proposed improvements, these intersections would operate at LOS C or better and mitigation measure TRA-11a would no longer be required. The Proposed Project, which involves construction of the offsite water tank anticipated in the 2006 Program EIR, would not change the conclusion reached in the 2006 Program EIR or 2014 Addendum for this impact.	Less than significant with TRA-11a: Prepare Plans Showing Access Strategy for Each of the Specific Plan Intersections on Rohnert Park Expressway	No impact (not applicable to the Proposed Project) No mitigation is required
TRA-12: Disruption of Alternative Transportation Modes at 2012 Buildout	Less than significant	No impact (not applicable to the Proposed Project)	The 2006 Program EIR concluded that the 2006 Specific Plan would have a less than significant impact related to disruption of alternative transportation modes at 2012 buildout. The Proposed Project, which involves construction of the offsite water tank anticipated in the 2006 Program EIR, would not change the conclusion reached in the 2006 Program EIR for this impact.	Less than significant No mitigation is required	No impact (not applicable to the Proposed Project) No mitigation is required

Impact	2006 Program EIR Significance without Mitigation	Proposed Project Significance without Mitigation	Explanation	2006 Program EIR Significance with Mitigation	Proposed Project Significance with Applicable Mitigation
2020 Plus Project Buildout					
TRA-13: Unacceptable Level of Service at Snyder Lane/Keiser Avenue Intersection	Significant	No impact (not applicable to the Proposed Project)	The 2006 Program EIR concluded that the 2006 Specific Plan would result in unacceptable levels of service at the Snyder Lane/Keiser Avenue intersection under 2020 conditions. The Proposed Project, which involves construction of the offsite water tank anticipated in the 2006 Program EIR, would not change the conclusion reached in the 2006 Program EIR for this impact.	Less than significant with TRA-4a: Install Traffic Signal at Snyder Lane/Keiser Avenue Intersection and TRA-4b: Widen Keiser Avenue Approach and Snyder Lane	No impact (not applicable to the Proposed Project) No mitigation is required
TRA-14: Unacceptable Level of Service at Petaluma Hill Road/Keiser Avenue Intersection	Significant	No impact (not applicable to the Proposed Project)	The 2006 Program EIR concluded that the 2006 Specific Plan would have a significant impact on levels of service at the Petaluma Hill Road/Keiser Avenue intersection. The Proposed Project, which involves construction of the offsite water tank anticipated in the 2006 Program EIR, would not change the conclusion reached in the 2006 Program EIR for this impact.	Less than significant with TRA-14a: Signalize Petaluma Hill Road/Keiser Avenue Intersection	Less than significant with TRA-14a
TRA-15: Unacceptable Level of Service at Rohnert Park Expressway/Snyder Lane Intersection	Significant	No impact (not applicable to the Proposed Project)	The 2006 Program EIR concluded that the 2006 Specific Plan would have a significant impact on levels of service at the Rohnert Park Expressway/Snyder Lane intersection. The Proposed Project, which involves construction of the offsite water tank anticipated in the 2006 Program EIR, would not change the conclusion reached in the 2006 Program EIR for this impact.	Less than significant with TRA-6a: Widen Snyder Lane between Keiser Avenue and Southwest Boulevard and TRA-6b: Reconfigure Rohnert Park Expressway/Snyder Lane Intersection	No impact (not applicable to the Proposed Project) No mitigation is required

Impact	2006 Program EIR Significance without Mitigation	Proposed Project Significance without Mitigation	Explanation	2006 Program EIR Significance with Mitigation	Proposed Project Significance with Applicable Mitigation
TRA-16: Unacceptable Level of Service at Rohnert Park Expressway/Sonoma State University Access Intersection	Significant	No impact (not applicable to the Proposed Project)	The 2006 Program EIR concluded that the 2006 Specific Plan would have a significant impact on levels of service at the Rohnert Park Expressway/Sonoma State University access intersection. The Proposed Project, which involves construction of the offsite water tank anticipated in the 2006 Program EIR, would not change the conclusion reached in the 2006 Program EIR for this impact.	Less than significant with TRA-7a: Install Traffic Signal or Roundabout at Rohnert Park Expressway/Sonoma State University Access Intersection	No impact (not applicable to the Proposed Project) No mitigation is required
TRA-17: Unacceptable Level of Service at Rohnert Park Expressway/Petaluma Hill Road Intersection	Significant	No impact (not applicable to the Proposed Project)	The 2006 Program EIR concluded that the 2006 Specific Plan would have a significant impact on levels of service at the Rohnert Park Expressway/Petaluma Hill Road intersection. The Proposed Project, which involves construction of the offsite water tank anticipated in the 2006 Program EIR, would not change the conclusion reached in the 2006 Program EIR for this impact.	Less than significant with TRA-8a: Add Southbound Right Turn Lane and Separate Eastbound Left and Right Turn Lanes at Rohnert Park Expressway/Petaluma Hill Road Intersection	No impact (not applicable to the Proposed Project) No mitigation is required
TRA-18: Increased Congestion at East Cotati Avenue/Old Redwood Highway Intersection	Significant	No impact (not applicable to the Proposed Project)	The 2006 Program EIR concluded that the 2006 Specific Plan would have a significant impact on levels of service at the East Cotati Avenue/Old Redwood Highway intersection. The Proposed Project, which involves construction of the offsite water tank anticipated in the 2006 Program EIR, would not change the conclusion reached in the 2006 Program EIR for this impact.	Less than significant with TRA-18a: City of Rohnert Park Coordination with City of Cotati	No impact (not applicable to the Proposed Project) No mitigation is required

Impact	2006 Program EIR Significance without Mitigation	Proposed Project Significance without Mitigation	Explanation	2006 Program EIR Significance with Mitigation	Proposed Project Significance with Applicable Mitigation
TRA-19: Increased Congestion at Adobe Road/Petaluma Hill Road and Main Street/Old Redwood Highway Intersections in Penngrove	Significant	No impact (not applicable to the Proposed Project)	The 2006 Program EIR concluded that the 2006 Specific Plan would have a significant impact on levels of service at the Adobe Road/Petaluma Hill Road intersection in Penngrove. The Proposed Project, which involves construction of the offsite water tank anticipated in the 2006 Program EIR, would not change the conclusion reached in the 2006 Program EIR for this impact.	Less than significant with TRA-9a: City of Rohnert Park Coordination with *Sonoma County Transportation Authority* and Sonoma County	No impact (not applicable to the Proposed Project) No mitigation is required
TRA-20: Impede Emergency Access at 2020 Buildout	Less than significant	No impact (not applicable to the Proposed Project)	The 2006 Program EIR stated that "the University District Specific Plan would include an interconnected street network that would facilitate emergency access; it does not appear to include any design features that would adversely affect the maneuverability of emergency vehicles." The Proposed Project, which involves construction of the offsite water tank anticipated in the 2006 Program EIR, would not change the conclusion reached in the 2006 Program EIR for this impact. Accordingly, no new significant traffic impacts or a substantial increase in the severity of any prior traffic impacts would occur as a result of the Proposed Project.	Less than significant No mitigation is required	No impact (not applicable to the Proposed Project) No mitigation is required
TRA-21: Disruption of Alternative Transportation Modes at 2020 Buildout	Less than significant	No impact (not applicable to the Proposed Project)	The 2006 Program EIR concluded that the 2006 Specific Plan would have a less than significant impact related to disruption of alternative transportation modes at 2020 buildout. The Specific Plan EIR concluded that the 2006 Project would not affect alternative transportation modes. The Proposed Project, which involves construction of the offsite water tank anticipated in the 2006 Program EIR, would not change the conclusion reached in the 2006 Program EIR for this impact.	Less than significant No mitigation is required	No impact (not applicable to the Proposed Project) No mitigation is required
TRA-22: Unacceptable Level of Service on U.S. 101 (Significant and Unavoidable)	Significant	No impact (not applicable to the Proposed Project)	The 2006 Program EIR concluded that the 2006 Specific Plan would result in significant impacts to U.S. 101. The Proposed Project, which involves construction of the offsite water tank anticipated in the 2006 Program EIR, would not change the conclusion reached in the 2006 Program EIR for	Significant and unavoidable No mitigation is feasible	No impact (not applicable to the Proposed Project)

Impact	2006 Program EIR Significance without Mitigation	Proposed Project Significance without Mitigation	Explanation	2006 Program EIR Significance with Mitigation	Proposed Project Significance with Applicable Mitigation
			this impact.		No mitigation is required
Utilities and Service Systems					
UT-1: Temporary Increase in Solid Waste Generation	Less than significant	Less than significant	The 2006 Program EIR evaluated temporary solid waste generation impacts due to construction activities. Development of the Proposed Project would occur within a similar development footprint as the 2006 Project. Because the Proposed Project would not require higher levels of construction activity, construction of the Proposed Project would not generate higher levels of solid waste. No new significant solid waste-related impacts or a substantial increase in the severity of any prior impacts would be expected to occur with implementation of the Proposed Project.	Less than significant No mitigation is required	Less than significant No mitigation is required
UT-2: Increase in Solid Waste Generation Associated with University District Specific Plan Implementation	Less than significant	Less than significant	The 2006 Program EIR evaluated environmental impacts due to the increases in population growth. The Proposed Project does not involve residential or commercial uses that would generate solid waste. No new significant solid waste impacts or a substantial increase in the severity of any prior impacts would be expected to occur with implementation of the Proposed Project.	Less than significant No mitigation is required	Less than significant No mitigation is required
UT-3: Increased Demand for Energy Associated with University District Specific Plan Implementation	Less than significant	Less than significant	The 2006 Program EIR evaluated energy demand impacts due to the proposed development. Development of the Proposed Project would occur within a similar development footprint as the 2006 Project. The Proposed Project would construct the water tank anticipated in the 2006 Program EIR. No new significant energy demand impacts or a substantial increase in the severity of any prior impacts would be expected to occur with implementation of the Proposed Project.	Less than significant No mitigation is required	Less than significant No mitigation is required
UT-4: Increased Demand for	Less than significant	Less than significant	The 2006 Program EIR evaluated telecommunications-generated impacts due to the proposed development. The	Less than significant	Less than significant

Impact	2006 Program EIR Significance without Mitigation	Proposed Project Significance without Mitigation	Explanation	2006 Program EIR Significance with Mitigation	Proposed Project Significance with Applicable Mitigation
Communications Associated with University District Specific Plan Implementation			Proposed Project would construct the water tank anticipated in the 2006 Program EIR. No new significant communications demand impacts or a substantial increase in the severity of any prior impacts would be expected to occur with implementation of the Proposed Project.	No mitigation is required	No mitigation is required
UT-5: Increased Wastewater Generation Associated with University District Specific Plan Implementation	Less than significant	No impact (not applicable to the Proposed Project)	The 2006 Program EIR evaluated wastewater impacts due to the increases in population growth. The Proposed Project would construct the offsite water tank anticipated in the 2006 Program EIR. The project does not include components that would generate wastewater. No new significant wastewater generation impacts or a substantial increase in the severity of any prior impacts would be expected to occur with implementation of the Proposed Project.	Less than significant No mitigation is required	Less than significant No mitigation is required
Water Resources					
WR-1: Change in Drainage Patterns	Potentially significant	Potentially significant	Development of the Proposed Project would occur within a similar development footprint as the 2006 Project. No new impacts or a substantial increase in the severity of the prior hydrology impacts would be expected to occur with implementation of the Proposed Project.	Less than significant with WR-1a: Implement Recommendations of Storm Water Quality Management Plan and Storm Drainage Detention Analysis	Less than significant with WR-1a
WR-2: Water Quality Impacts from Increased Runoff	Potentially significant	Potentially significant	Development of the Proposed Project would occur within a similar development footprint as the 2006 project. No new impacts or a substantial increase in the severity of the prior hydrology impacts would be expected to occur with implementation of the Proposed Project.	Less than significant with WR-1a: Implement Recommendations of Storm Water Quality Management Plan and Storm Drainage Detention Analysis; WR-2a: Street Sweeping; and	Less than significant with WR-1a and WR-2b

Impact	2006 Program EIR Significance without Mitigation	Proposed Project Significance without Mitigation	Explanation	2006 Program EIR Significance with Mitigation	Proposed Project Significance with Applicable Mitigation
				WR-2b: Best Management Practices to Maximize Storm Water Quality	
WR-3: Construction-Related Water Quality Effects	Significant	Potentially Significant	Development of the Proposed Project would occur within a similar development footprint as the 2006 Project. No new impacts or a substantial increase in the severity of the prior hydrology impacts would be expected to occur with implementation of the Proposed Project.	Less than significant with WR-2b: Best Management Practices to Maximize Storm Water Quality	Less than significant with WR-2b
WR-4: Potential Contamination from Construction Vehicles and Equipment Spills	Potentially significant	Potentially significant	Development of the Proposed Project would occur within a similar development footprint as the 2006 Project and additional construction related water quality impacts are not anticipated to occur. No new impacts or a substantial increase in the severity of the prior water quality impacts would be expected to occur with implementation of the Proposed Project.	Less than significant with WR-4a: Implement a Spill Prevention and Control Program and WR-4b: Implement Measures to Maintain Groundwater or Surface Water Quality	Less than significant with WR-4a and WR-4b
WR-5: Flood Hazard	Significant	No impact (not applicable to the Proposed Project)	The 2006 Program EIR concluded that sections of the project area are within a 100-year floodplain. The offsite water tank would not be within a 100-year floodplain. Therefore, development of the Proposed Project would not expose people, structures, and/or facilities to significant risk from flooding No new impacts or a substantial increase in the severity of the prior hydrology impacts would be expected to occur with implementation of the Proposed Project.	Less than significant with WR-5a: Construct Structures Outside of the 100-Year Floodplain	No impact (not applicable to the Proposed Project) No mitigation is required
WR-6: Seiche, Tsunami, or Mudflow	Less than significant	Less than significant	The 2006 Program EIR concluded that the project site was not subject to tsunami hazard to the distance from the ocean, and unlikely to be subject to seiche hazard due to the	Less than significant No mitigation is	Less than significant

Impact	2006 Program EIR Significance without Mitigation	Proposed Project Significance without Mitigation	Explanation	2006 Program EIR Significance with Mitigation	Proposed Project Significance with Applicable Mitigation
Hazards			distance to any large water bodies. Since development of the Proposed Project would occur within a similar development footprint as the 2006 Project, no new impacts or a substantial increase in the severity of seiche or tsunami would be expected to occur with implementation of the Proposed Project.	required	No mitigation is required
WR-7: Groundwater Quantity	Less than significant	Less than significant	Development of the Proposed Project would occur within a similar development footprint as the 2006 Project, so additional groundwater impacts are not anticipated to occur. No new impacts or a substantial increase in the severity of the prior groundwater impacts would be expected to occur with implementation of the Proposed Project.	Less than significant No mitigation is required	Less than significant No mitigation is required
WR-8: Insufficient Surface Water Quantity	Less than significant	Less than significant	The 2006 Program EIR contained the Specific Plan Water Supply Analysis based on the City's 2005 Urban Water Management Plan. Development of the Proposed Project would occur within a similar development footprint as the 2006 Project. No new impacts or a substantial increase in the severity of the prior water supply-related impacts would be expected to occur with implementation of the Proposed Project.	Less than significant No mitigation is required	Less than significant No mitigation is required
WR-9: Use of Recycled Water	Less than Significant	Less than Significant	The 2006 Program EIR contained the Specific Plan Water Supply Analysis based on the City's 2005 Urban Water Management Plan. Development of the Proposed Project would occur within a similar development footprint as the 2006 Project. No new impacts or a substantial increase in the severity of the prior water supply-related impacts would occur.	Less than significant No mitigation is required	Less than significant No mitigation is required

Impact	2006 Program EIR Significance without Mitigation	Proposed Project Significance without Mitigation	Explanation	2006 Program EIR Significance with Mitigation	Proposed Project Significance with Applicable Mitigation
Growth-Inducing Impacts					
GI-1: Induce Indirect or Direct Growth	Less than significant	Less than significant	The 2006 Program EIR examined whether the Proposed Project would induce additional growth beyond that proposed in the University District Specific Plan. Development of the Proposed Project would occur within a similar development footprint as the 2006 Project and would construct the offsite water tank anticipated in the 2006 Program EIR. No new significant growth inducing impacts or a substantial increase in the severity of any prior impacts would be expected to occur with implementation of the Proposed Project.	Less than significant No mitigation is required.	Less than significant No mitigation is required
GI-2: Removal of a Potential Obstacle to Growth	Less than significant	Less than significant	The 2006 Program EIR examined whether the Proposed Project would induce additional growth beyond that proposed in the Specific Plan. Development of the Proposed Project would occur within a similar development footprint as the 2006 Project and would construct the offsite water tank anticipated in the 2006 Program EIR. No new significant growth inducing impacts or a substantial increase in the severity of any prior impacts would be expected to occur with implementation of the Proposed Project.	Less than significant No mitigation is required	Less than significant No mitigation is required
GI-3: Tax Community Services or Facilities to an Extent that New Services or Facilities Would Be Necessary	Less than significant	Less than significant	The Proposed Project would not change proposed provision of services as a part of the Specific Plan project development.	Less than significant No mitigation is required	Less than significant No mitigation is required
Cumulative Impacts					
CE-1: Cumulative Loss of Open Space Lands	Significant	Less than significant	The 2006 Program EIR concluded development of the 2006 Project would convert open space and agricultural land to urban use. The Proposed Project would construct the water tank anticipated in the 2006 Program EIR. No new impacts or a substantial increase in the severity of any prior cumulative impacts due to the loss of open space lands	Significant and unavoidable No additional mitigation is available	Less than significant No mitigation is required

Impact	2006 Program EIR Significance without Mitigation	Proposed Project Significance without Mitigation	Explanation	2006 Program EIR Significance with Mitigation	Proposed Project Significance with Applicable Mitigation
			would be expected to occur with implementation of the Proposed Project.		
CE-2: Cumulative Effect on Aesthetic and Visual Resources	Less than significant	Less than significant	Development under the Proposed Project would occur within a similar development footprint as the 2006 Specific Plan. No new impacts or a substantial increase in the severity of the prior cumulative aesthetic and visual impacts would be expected to occur with implementation of the Proposed Project.	Less than significant No mitigation is required	Less than significant No mitigation is required
CE-3: Cumulative Effect of Conversion of Agricultural Lands	Significant	Less than significant	The 2006 Program EIR concluded development of the 2006 Project would convert open space and agricultural land to urban use. Construction the offsite water tank, which would take place on a hillside above lands used for grazing, would not convert farmland to other uses. Grazing uses could continue to occur around the water tank. Therefore, development of the Proposed Project would result in new impacts or a substantial increase in the severity of any prior cumulative impacts due to the conversion of agricultural lands,	Significant and unavoidable No feasible mitigation is available	Less than significant No mitigation is required
CE-4: Cumulative Effect on Air Quality	Significant	Less than significant	The Proposed Project would construct the offsite water tank anticipated in the 2006 Program EIR. Development of the Proposed Project would occur within a similar development footprint as the 2006 Project and result in the same types of land use. No new impacts or a substantial increase in the severity of the prior cumulative air quality impacts would be expected to occur with implementation of the Proposed Project.	Significant and unavoidable No further mitigation is feasible	Less than significant No mitigation is required
CE-5: Cumulative Effect on Biological Resources	Significant	Potentially Significant	Development of the Proposed Project would occur within a similar development footprint as the 2006 Project and would construct the offsite water tank anticipated in the 2006 Program EIR. No new impacts or a substantial increase in the severity of the prior cumulative biological resources impacts would be expected to occur with implementation of the Proposed Project. Implementation of project-specific	Significant and unavoidable with BIO-2a, BIO-4a, BIO-5a, BIO-6a, BIO-7a, BIO-8a, BIO-9a, BIO-10a, BIO-12a, and BIO-	Less than significant with BIO 5a, 6a, 14a, 15a,

Impact	2006 Program EIR Significance without Mitigation	Proposed Project Significance without Mitigation	Explanation	2006 Program EIR Significance with Mitigation	Proposed Project Significance with Applicable Mitigation
			mitigation measures would reduce the project's contribution to this cumulative impact to a less than significant level.	13a	
CE-6: Cumulative Effect on Cultural Resources	None	None	See comments above regarding cultural resources impacts. Development of the Proposed Project would occur within a similar development footprint as the 2006 Project. No new impacts or a substantial increase in the severity of the prior cumulative cultural resources impacts would be expected to occur with implementation of the Proposed Project.	No mitigation is required	None
CE-7: Cumulative Land Use Impacts	Less than significant	Less than significant	Development of the Proposed Project would occur within a similar development footprint as the 2006 Project and would construct the offsite water tank anticipated in the 2006 Program EIR. No new impacts or a substantial increase in the severity of any prior cumulative land use impacts would be expected to occur with implementation of the Proposed Project.	Less than significant No mitigation is required	Less than significant No mitigation is required
CE-8: Cumulative Land Use Impacts Related to Loss of Open Space	Significant	Less than significant	The Proposed Project would construct the offsite water tank anticipated in the 2006 Specific Plan EIR. No new impacts or a substantial increase in the severity of any prior cumulative impacts due to the loss of open space lands would be expected to occur with implementation of the Proposed Project.	Significant and unavoidable No additional mitigation is available	Less than significant No mitigation is required
CE-9: Cumulative Effect on Noise	Significant	Less than significant	Traffic noise would not increase as a result of project changes associated with the Proposed Project. See comments above regarding noise impacts. Development of the Proposed Project would occur within a similar development footprint as the 2006 Project. No new impacts or a substantial increase in the severity of the prior cumulative noise impacts would be expected to occur with implementation of the Proposed Project.	Significant and unavoidable No feasible mitigation is available	Less than significant No mitigation is required
CE-10: Cumulative Effect of Population Growth in the City of	Less than significant	Less than significant	See comments above regarding growth-inducement impacts. Development of the Proposed Project would include construction of the water tank anticipated in the 2006	Less than significant	Less than significant

Impact	**2006 Program EIR Significance without Mitigation**	**Proposed Project Significance without Mitigation**	**Explanation**	**2006 Program EIR Significance with Mitigation**	**Proposed Project Significance with Applicable Mitigation**
Rohnert Park			Program EIR, within a similar development footprint as the 2006 Project. No new impacts or a substantial increase in the severity of the prior cumulative growth inducing impacts would be expected to occur with implementation of the Proposed Project.	No mitigation is required	No mitigation is required
CE-11: Cumulative Effect on Public Services and Utilities	Less than significant	Less than significant	Implementation of Rohnert Park General Plan policies as described in the 2006 Program EIR will still occur under the Proposed Project. See comments above. Development of the Proposed Project would occur within a similar development footprint as the 2006 Project. No new impacts or a substantial increase in the severity of the prior cumulative public services and utilities impacts would be expected to occur with implementation of the Proposed Project.	Less than significant No mitigation is required	Less than significant No mitigation is required
CE-12: Cumulative Effect on Roadways and Intersections in the Study Area *(for significance and mitigation, see Impacts TRA-4 to TRA-21 above)*		*see Impacts TRA-4 to TRA-21 above*			
CE-13: Cumulative Increase in Water Supply Demand	Less than significant	Less than significant	The Proposed Project would construct the offsite water tank anticipated in the 2006 Program EIR. Sources of water are not proposed to be changed and the project would not have new impacts related to water supply demand nor would it result in a substantial increase in the severity of cumulative impacts related to an increase in water supply demand.	Less than significant No mitigation is required	Less than significant No mitigation is required
CE-14: Cumulative Increase in Stormwater Runoff from the Proposed Project and	Less than significant	Less than significant	Development of the Proposed Project would occur within a similar development footprint as the 2006 Project. No new impacts or a substantial increase in the severity of the prior cumulative stormwater runoff impacts would be expected to	Less than significant No mitigation is required	Less than significant No mitigation is required

Impact	**2006 Program EIR Significance without Mitigation**	**Proposed Project Significance without Mitigation**	**Explanation**	**2006 Program EIR Significance with Mitigation**	**Proposed Project Significance with Applicable Mitigation**
Related Projects			occur with implementation of the Proposed Project.		

APPENDIX A

Visual Analysis

METHODOLOGY

Brelje &Race has produced a visual representation of the proposed University District water tank, access road, arch culvert, and site security fencing by generating a 3D model of these improvements in Google Sketch-Up and superimposing the model into Google Earth Pro. This allows us to view the proposed improvements from any desired number of locations surrounding the site.

The locations presented are identified in the Visual Analysis Index on Figure 1. A picture of the existing site and a 3D model are presented from the following locations:

- An Overall Aerial View of the Proposed Tank Site (Figure 2)
- Intersection of Petaluma Hill Road and Rohnert Park Expressway (Figure 3)
- Petaluma Hill Road near Access Road Entrance (Figure 4)
- Intersection of Petaluma Hill Road and Laurel Drive (Figure 5)
- Roberts Ranch Road (Figure 6)

ANALYSIS

Analysis of the composite model shows that the proposed improvements will be clearly visible from certain portions of Petaluma Hill Road and Roberts Ranch Road. Views from Petaluma Hill Road are primarily confined to the stretch of roadway between Rohnert Park Expressway and E. Cotati Avenue. However, views of the proposed improvements are greatly filtered by mature trees and are periodically blocked from view by intervening rural development. Considering typical vehicle speeds along Petaluma Hill Road, tree coverage, and topography, views of the tank site will be intermittent, and will generally not be particularly noticeable.

The proposed water tank location is located primarily in cut, and does not skyline above the surrounding hillsides. In all locations, the tank site is broken up by a treed foothill backdrop. Provided that the tank is painted “Sea Ranch Green” or a similar dark green color, the tank will not be particularly noticeable, especially in light of the surrounding scattered rural development. Example tanks painted the proposed Sea Ranch Green tank color are presented in Figure 7. A brush-out of the proposed “Sea Ranch Green” color provided by Tnemec Company Inc. is provided in Figure 8.

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UNIVERSITY DISTRICT
WATER TANK VISUAL IMPACT ANALYSIS

VISUAL ANALYSIS PHOTO INDEX

AUGUST 2016

Brelje & Race
CONSULTING CIVIL ENGINEERS
475 Aviation Blvd. • Suite 120 • Santa Rosa, CA 95403 • 707-576-1322
www.brce.com

FIGURE 1

08-22-16 bryant \4324\dwg\4324 00\4324.00-EXHIBIT-Photo Exhibits.dwg TAB: Figure 2

UNIVERSITY DISTRICT
WATER TANK VISUAL IMPACT ANALYSIS

OVERALL AERIAL OF PROPOSED TANK SITE

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FIGURE 2

08-22-16 bryant \4324\dwg\4324 00\4324.00-EXHIBIT-Photo Exhibits.dwg TAB: plate 2

UNIVERSITY DISTRICT
WATER TANK VISUAL IMPACT ANALYSIS

VISUAL FROM PETALUMA HILL ROAD & ROHNERT PARK EXPRESSWAY

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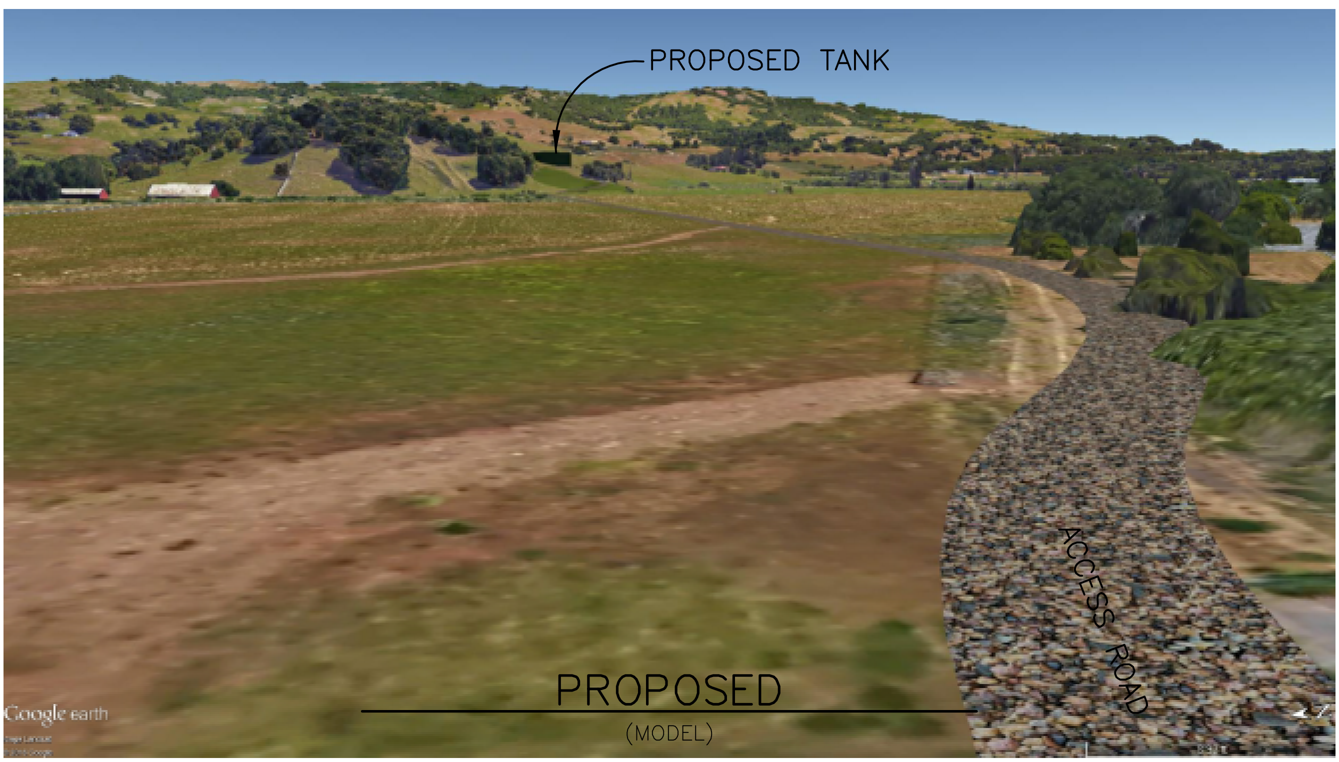
FIGURE 3



08-22-16 bryant \4324\dwg\4324 00\4324.00-EXHIBIT-Photo Exhibits.dwg TAB: Figure 4

UNIVERSITY DISTRICT
WATER TANK VISUAL IMPACT ANALYSIS

VISUAL FROM PETALUMA HILL ROAD NEAR ACCESS ROAD

AUGUST 2016

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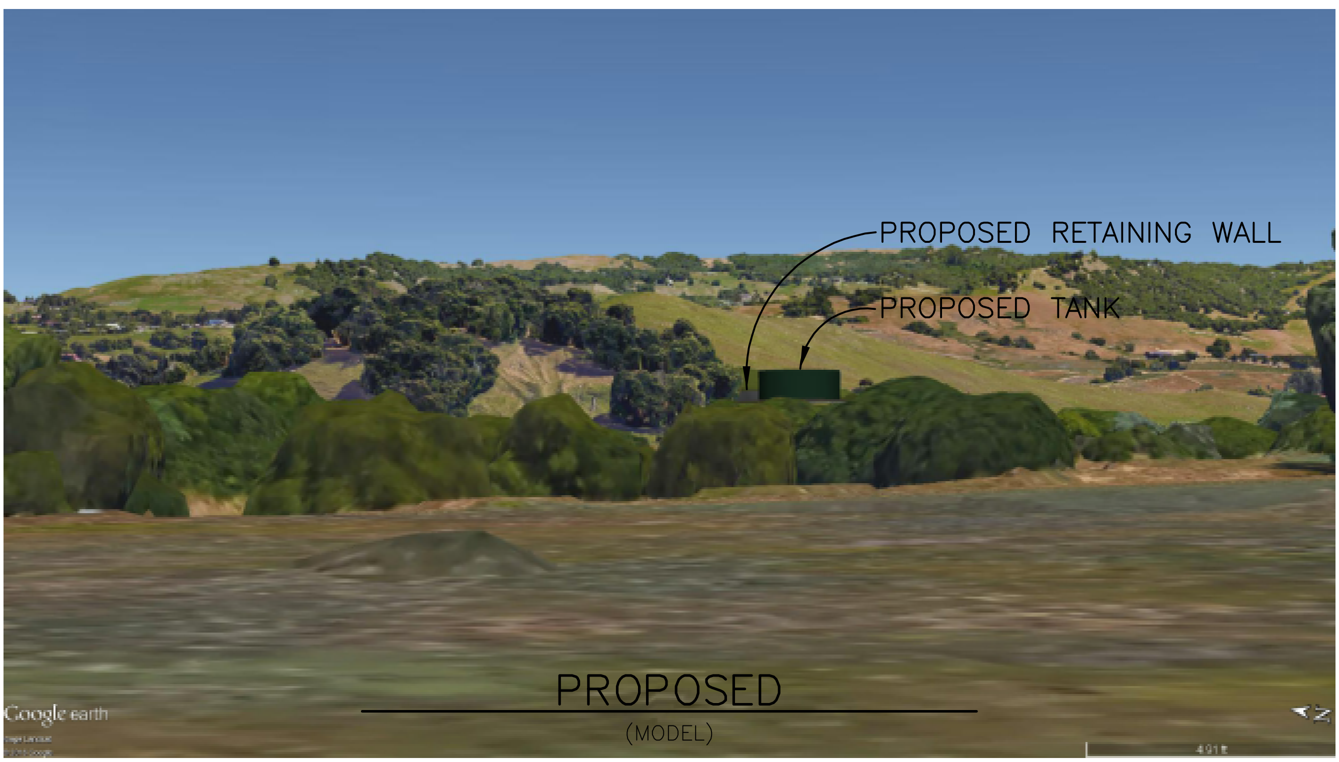
FIGURE 4

08-22-16 bryant \4324\dwg\4324 00\4324.00-EXHIBIT-Photo Exhibits.dwg TAB: Figure 5



UNIVERSITY DISTRICT
WATER TANK VISUAL IMPACT ANALYSIS

VISUAL FROM PETALUMA HILL ROAD & LAUREL DRIVE

AUGUST 2016

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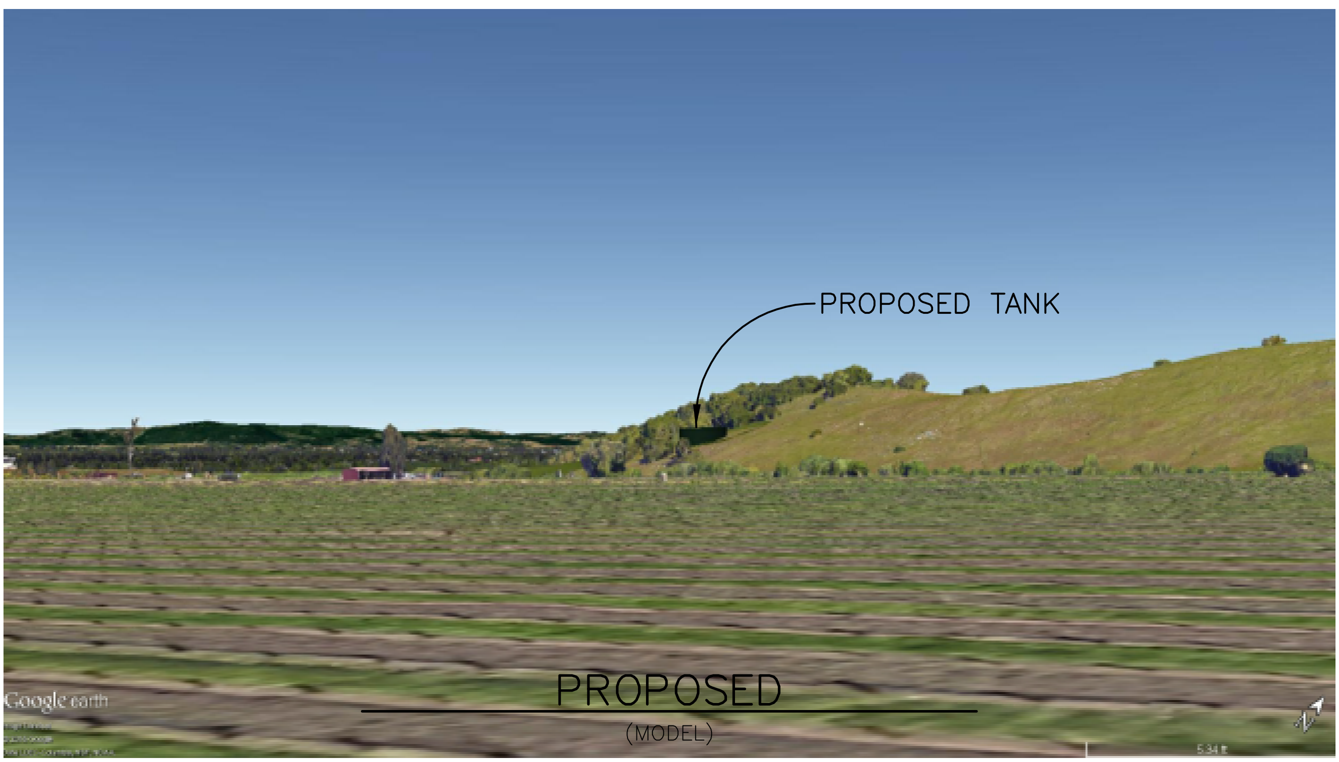
FIGURE 5



08-22-16 bryant \4324\dwg\4324 00\4324.00-EXHIBIT-Photo Exhibits.dwg TAB: Figure 6

UNIVERSITY DISTRICT
WATER TANK VISUAL IMPACT ANALYSIS

VISUAL FROM ROBERTS ROAD

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FIGURE 6

"SEA RANCH GREEN" WATER TANK FROM
TOWN OF WINDSOR LAKEWOOD TANK RECOATING PROJECT

"SEA RANCH GREEN" WATER
TANK FROM CITY OF SANTA
ROSA SEISMIC UPGRADES PROJECT

"SEA RANCH GREEN" WATER
TANK FROM RUSSIAN RIVER UTILITY
UPPER TERRACE TANK PROJECT

08-22-16 bryant \4324\dwg\4324 00\4324.00-EXHIBIT-Example Tanks.dwg TAB: PLATE 7 - BOARDER

UNIVERSITY DISTRICT
WATER TANK VISUAL IMPACT ANALYSIS

EXAMPLE "SEA RANCH GREEN" WATER TANKS

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FIGURE 7

08-22-16 bryant \4324\dwg\4324 00\4324.00-EXHIBIT-Example Tanks.dwg TAB: PLATE 8 - BOARDER

UNIVERSITY DISTRICT
WATER TANK VISUAL IMPACT ANALYSIS

BRUSH OUT OF "SEA RANCH GREEN" COLOR

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FIGURE 8

APPENDIX B

California Tiger Salamander and Endangered Plants

Ted Winfield & Associates
1455 Wagoner Drive, Livermore, CA 94550 ● (925) 371-6379

August 5, 2016

Mr. Kevin Pohlson
Brookfield Bay Area Builders, Inc.
500 La Gonda Way, Suite 100
Danville, CA 94526

Re: Anderson 53: California Tiger Salamander and Endangered Plants

Dear Kevin:

The purpose of this letter is to provide a summary discussion of the status of the California tiger salamander (*Ambystoma californiense*) (CTS) and endangered plants reported to occur in seasonal wetlands at the Anderson 53 site.

BACKGROUND

The Anderson 53 site occurs on the Santa Rosa Plain as it was designated initially by the U.S. Army Corps of Engineers (Corps). and ultimately memorialized in the Santa Rosa Plain Conservation Strategy (Conservation Strategy).[1] One of the products of the Conservation Strategy was the designation for each parcel concerning the occurrence or possible occurrence of CTS and/or endangered plants, which is shown on Figure 3 of the Conservation Strategy.

In 2007, the U.S. Fish and Wildlife Service issued a Programmatic Biological Opinion (PBO) [2] to the Corps to apply to project subject to the Corps' permitting authority that may affect CTS and the three endangered plant species known to occur in seasonal wetlands on the Santa Rosa Plain. The three endangered plant species include Burke's goldfields (*Lasthenia burkei*), Sonoma sunshine (*Blennosperma bakeri*) and Sebastopol meadowfoam (*Limnanthes vinculans*). Enclosure 1 of the PBO is a map showing the designations assigned to each parcel generally patterned after Figure 3 of the Conservation Strategy, with some differences in the designations assigned to each parcel and with much less detail.

[1] Santa Rosa Conservation Strategy. Final Report. December 1, 2005.

[2] Programmatic Biological Opinion (Programmatic) for U.S. Army Corps of Engineers (Corps) Permitted Projects that May Affect California Tiger Salamander and Three Endangered Plant Species on the Santa Rosa Plain, California (Corps File Number 223420N) dated November 9, 2007. U.S. Fish and Wildlife Service File 81420-2008-F-0261.

In 2014, the U.S. Fish and Wildlife Service issued the Draft Recovery Plan for the Santa Rosa Plain (Recovery Plan)[3], and the Recovery Plan was approved in its final form on May 31, 2016. The Anderson 53 site lies outside the planning areas for the Recovery Plan for CTS and the endangered plants, and is not included in any of the core or management areas defined in the Recovery Plan for CTS and endangered plants. Core areas comprise the heart of the species historical (and current) range and represent central blocks of contiguously occupied habitat that function to allow for dispersal, genetic interchange between populations, and metapopulation dynamics. Management areas are occupied habitat peripheral to the species' core range (the core areas).

CALIFORNIA TIGER SALAMANDER

The designation for the Anderson 53 site in the Programmatic Biological Opinion (PBO) is *No Effect* and in the Santa Rosa Plain Conservation Strategy as *Presence of CTS is not likely and there are no listed plants in this area*. The Anderson 53 site lies outside the planning areas for the Recovery Plan for CTS, and is not included in any of the core or management areas defined in the Recovery Plan for CTS.

Summary of CTS Surveys in Vicinity of Anderson 53

Potential CTS breeding habitat occurring on the Anderson 53 and the University District LLC properties currently under development west of Petaluma Hill Road was sampled in 1994, 1995, 1996, 2000, 2001 and 2002 and 2003 following aquatic survey protocols of the California Department of Fish and Game[4] (Biosearch Wildlife Surveys 1996, 1997, 2000, 2001, 2003). No CTS larvae were detected during any of these surveys. A protocol CTS upland survey was conducted in winter and spring 2002-2003 and no adult CTS were captured during that survey[5]. Further, no CTS were detected during aquatic sampling

[3] U.S. Fish and Wildlife Service. 2014. Draft Recovery Plan for the Santa Rosa Plain: *Blennosperma bakeri* (Sonoma sunshine)*; Lasthenia burkei* (Burke's goldfields)*; Limnanthes vinculans* (Sebastopol meadowfoam); Sonoma County Distinct Population Segment of the California Tiger Salamander (*Ambystoma californiense*). U.S. Fish and Wildlife Service, Pacific Southwest Region, Sacramento, California. vi + 132 pp.

[4] Biosearch Wildlife Surveys. 1996. Special-status amphibian and reptile survey, Vast Oak West Property, Sonoma County CA. Prepared for: Quaker Hill Development Corporation; Biosearch Wildlife Surveys. 1997. Special-status amphibian and reptile survey, Vast Oak East Property, Sonoma County CA. Prepared for: Quaker Hill Development Corporation; Biosearch Wildlife Surveys. 2000. Habitat assessment and field studies for special-status wildlife, Vast Oak project site, Sonoma County. Submitted to Quaker Hill Development Corporation; Biosearch Wildlife Surveys. 2001. Special-status amphibian and reptile survey, Vast Oak Project site, Sonoma County, California. Submitted to Brookfield Homes; Biosearch Wildlife Surveys. 2003. Special-status amphibian and reptile survey, Vast Oak Project site, Sonoma County, California. Submitted to Brookfield Homes;

[5] Biosearch Wildlife Surveys. 2003. Special-status amphibian and reptile survey, Vast Oak Project site, Sonoma County, California. Submitted to Brookfield Homes.

performed for special-status invertebrates for the University District LLC property west of Petaluma Hill Road (Entomological Consulting Services, Ltd. 1994) [6].

In 2006, University District LLC was authorized through permits from the U.S. Army Corps of Engineers, North Coast Regional Water Quality Control Board, California Department of Fish and Wildlife, and Sonoma County to construct approximately 8.60 acres of vernal pools and associated seasonal wetland habitat at the Anderson 48 Mitigation Site, located approximately 1,500 feet north of the Anderson 53 site. One of the conditions of the permit issued by the U.S. Army Corps of Engineers was implementation of CTS larval surveys for a five-year period following construction of the vernal pools and seasonal wetlands. These surveys were conducted between 2007 and 2011 and no CTS larvae were captured in any of the pools during these surveys[7].

In an e-mail dated October 30, 2006, Mr. Vincent Griego (U.S. Fish and Wildlife Service) issued the following statement concerning the Anderson 53 site, which was known as the Ballfield Site at the time:

> *This parcel is designated as "CTS Not Likely and Endangered Plants Not Present" under the Santa Rosa Plain Conservation Strategy and associated maps. Upon review of all available information, the Service concludes the proposed development on this property will not result in "take" of the endangered Sonoma County Distinct Population Segment of the California tiger salamander (Ambystoma californiense) or result in effects to any of the listed plants. We confine this determination to this project site which may not apply to other sites in the area. Therefore, unless new information reveals effects of the proposed project that may affect a federally listed species in a manner or to an extent not considered, or a new species is listed or critical habitat is designated that may be affected by the proposed action, no further action pursuant to the Endangered Species Act of 1973, as amended, is necessary. If you have further questions, you can contact me at the number below.*
>
> *Sincerely,*
> *Vincent*
> ----------------------------------
> *Vincent Griego*
> *Fish and Wildlife Biologist*
> *U.S. Fish and Wildlife Service*
> *2800 Cottage Way Room W-2605*
> *Sacramento, CA 95841*
> *(916) 414-6493 Fax (916) 414-6713*

---

[6] Entomological Consulting Services, Ltd. 1994. Vast Oak West Project site near Rohnert Park. Surveys for Special-Status Aquatic Invertebrates. Letter report submitted to Mr. Craig R. Harrington, Quaker Hill Development, dated May 1, 1994.

[7] Letter reports prepared by Biosearch Associates presenting findings of California tiger salamander monitoring at the Anderson 48 Mitigation Preserve, Sonoma County, CA for the years 2007, 2008, 2009, 2010 and 2011. Letter reports dated October 26, 2007, October 8, 2009 (mis-dated, should be 2008), October 8, 2009, November 9, 2010, and October 25, 2011.

In 2011, the U.S. Fish and Wildlife Service published its final rule designating approximately 47,383 acres of land on the Santa Rosa Plain as critical habitat for the Sonoma County Distinct Population Segment of California Tiger Salamander (Sonoma CTS).[8] The Anderson 53 site is outside the designated critical habitat for Sonoma CTS.

Conditions remain unchanged at the Anderson 53 site. The nearest recent record of CTS breeding in the region of the Anderson 53 site is the Horn Mitigation Bank, which is approximately 3.5 miles northwest of the Anderson 53 site. The residential housing between this site and the Project Site form substantial barriers to southerly movement by CTS toward the Project Site and it is unlikely that salamanders would survive migration through the developed residential areas between the Horn Mitigation Bank site and the Anderson 53 site.

Summary

Multi-year CTS larval surveys conducted between 1994 and 2003 found no CTS larvae in marginal habitat located on or in the vicinity of the Anderson 53 site. No adult or juvenile CTS were captured during protocol CTS upland surveys conducted in 2002-2003 on the nearby University District LLC property to the west of the Anderson 53 site. Finally, no CTS larvae were found during the five years of aquatic surveys conducted at the Anderson 48 Mitigation Site, located approximately 1,500 feet north of the Anderson 53 site, between 2007 and 2011.

The most recent finding of adult CTS occurred at the Horn Mitigation Bank Number 2 located north of Hunter Lane in Santa Rosa, which is approximately 3.5 miles northwest of the Anderson 53 site and most of the area between the Horn Mitigation Bank and the Anderson 53 site consists of residential development, which is a barrier to migration of CTS. The same conditions exist between the Anderson 53 site and the nearest known CTS breeding site to the south.

Based on the lack of observation of CTS at the Anderson 53 site or nearby areas, CTS are not likely to be present at the Anderson 53 site. Further, based on the *No Effect* status for the Anderson 53 site in the PBO, CTS mitigation for activities at the Anderson 53 site should not be required.

ENDANGERED PLANTS

The designation for the Anderson 53 site in the Programmatic Biological Opinion (PBO) concerning the endangered plants (and CTS) is *No Effect*, and in the Santa Rosa Plain Conservation Strategy as *Presence of CTS is not likely and there are no listed plants in this area*. The Anderson 53 site is not included in any of the management or core areas defined in the Recovery Plan for endangered plants.

---

[8] Department of the Interior, Fish and Wildlife Service, 50 CFR Part 17. Endangered and Threatened Wildlife and Plants: Revised Designation of Critical Habitat for the Sonoma County Distinct Population Segment of California Tiger Salamander. Final Rule. Fed. Reg. Vol. 76, No. 169, Wednesday, August 31, 2011.

None of the endangered plants were observed in the wetlands during multiple surveys conducted at the nearby University District project site between 1995 and 2000, or the Anderson 48 mitigation site between 2008 and 2012, and none of the endangered plants were observed at the Anderson 53 during the 2006 and 2016 field surveys conducted for the delineation of potentially jurisdictional wetlands. The surveys conducted in the seasonal wetlands at the nearby Scenic Corridor mitigation area between 2008 and 2012 also resulted in negative findings for the endangered plants.

Surveys have been conducted recently at two sites along Keiser Avenue, which forms the northern boundary of the University District properties and none of the endangered plants were observed in the wetlands at these locations.

The Anderson 53 site lies outside the nearest core and management areas defined for the endangered plants in the Recovery Plan, and there are no observations reported in the California Natural Diversity Database in the vicinity of the Anderson 53 sites.

Based on the designation of the Anderson 53 as *Presence of CTS is not likely and there are no listed plants in this area,* and the lack of observations at the Anderson 53 site and other sites in the immediate vicinity of the Anderson 53 site, endangered plants known to occur in seasonal wetlands (vernal pools) on the Santa Rosa Plain are not expected to occur at the Anderson 53 site. Mitigation for impacts to wetlands, therefore, should not require plant mitigation following prescriptions of the PBO.

Please let me know if you need further discussion of the topics covered in this letter.

Sincerely,

Ted P. Winfield

Ted P. Winfield, Ph.D.

APPENDIX C

Preliminary Advisory Assessment Waters of the United States

PRELIMINARY ADVISORY ASSESSMENT
WATERS OF THE UNITED STATES
ANDERSON 53 SITE
PETALUMA HILL ROAD (EAST SIDE)
SONOMA COUNTY, CA

Prepared for:

Mr. Kevin Pohlson
Brookfield Bay Area Builders, Inc.
500 La Gonda Way, Suite 100
Danville, CA 94526

Prepared by:

Ted P. Winfield, Ph.D.
Ted Winfield & Associated
1455 Wagoner Drive
Livermore, CA 94550

July 26, 2016

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LIST OF FIGURES

1.0 SUMMARY

The report presents the results of a preliminary advisory assessment concerning the possible presence of features subject to the jurisdiction of the U.S. Army Corps of Engineers pursuant to Section 404 of the Clean Water Act at the approximately 53-acre site known as the Anderson 53 site (Site), located on the east side of Petaluma Hill Road just south of its intersection with Rohnert Park Expressway in Sonoma County, CA., and the east side of Petaluma Hill Road PHR) right-of-way between Copeland Creek crossing and the intersection of Rohnert Park Expressway with Petaluma Hill Road.

The Site is part of one parcel (APN: 047-132-038) with an addresses of 6626 Petaluma Hill Road. The Property consists primarily of upland habitat dominated by non-native grasses and forbs. Copeland Creek cuts diagonally across the Site from the northwest corner of the Site to the approximate mid-point along the southern border of the Site, then extends east to well beyond the southeastern corner of the Site.

The PHR right-of-way extends to the western fence line of agricultural fields to the east of PHR. The roadway is elevated along this approximately 0.25-mile stretch of PHR and the shoulder and base of the raised roadway berm consists of compacted gravel.

The field survey for the preliminary advisory assessment at the Site was conducted on June 2 and June 23, 2016. The presence and approximate boundaries of jurisdictional wetlands were determined using the routine on-site determination methodology as specified in the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987), and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Version (Version 2.0)* (Arid West Manual). The wetland status of the plant encountered at each sample point during the field survey was determined using the *State of California 2016 Wetland Plant List*.

Approximately 0.568 acre, not including the Copeland Creek channel, were found to meet the U.S. Army Corps of Engineers (Corps) definition of waters of the U.S. Another approximately 0.81 acre consisted of a swale with marginal jurisdictional features and may not be subject to the Corps' jurisdiction. The area along the base of the eastern side of PHR between the entrance to the Anderson 53 Site and the intersection of Rohnert Park Expressway and PHR did not support any feature that met the technical definition of a jurisdictional wetlands, and except for a few isolated occurrences, there was not a defined bed and bank structure (lack of ordinary high water mark) along the base of the roadway.

2.0 INTRODUCTION

2.1 SITE LOCATION AND DESCRIPTION

The approximately 53-acre Site is located on the east side of Petaluma Hill Road just south of its intersection with Rohnert Park Expressway in Sonoma County, CA (Figure 1). The Site is a former agricultural field that was used primarily for grazing. The lands to the north, east and south of the Site are used for various agricultural uses, including vineyards, grazing, and plant nursery, and lands that are part of Sonoma State University occur to the west of the Site (Figure 2). The PHR right-of-way along the east side of the roadway extends to the fence line of the nearby agricultural fields east of the right-of-way.

2.2 PHYSICAL AND HYDROLOGIC CONDITIONS

2.2.1 Topography and Drainage

Copeland Creek has been straightened (realigned) and runs along the southern boundary in the southeast part of the Site and then crosses the site diagonally, in what appears to be its original, natural alignment, carrying water to culvert beneath Petaluma Hill Road near the northwest corner of the Site. It is deeply incised and the banks have been raised through the import and placement of fill to prevent flooding. A smaller tributary drainage, partly defined, partly undefined runs roughly parallel to the diagonal section of Copeland Creek then runs parallel with the northern boundary of the Site for approximately 750 feet to the west.

The elevation at the eastern end of the site is approximately 208 ft. above mean sea level (msl) and the elevation at the western end above the top of bank of Copeland Creek is approximately 173 ft. msl. The difference in elevation across the site is approximately 35 ft. Away from the slope of the small defined drainage that crosses the site, the slope ranges from 10 percent in a few very small areas to less than 0.5 percent.

There is no defined drainage structure along the base of the raised PHR roadway. Runoff from the roadway likely flows in a northward direction, and during high runoff events probably floods onto the adjacent agricultural fields. Approximately 0.09 miles north of the entrance to the Site there is a culvert that directs runoff flow at the base of the roadway berm and directs it in a northwesterly direction beneath PHR. These waters eventually flow to the large treatment swales in the parking lot at the Green Music Center and eventually into Hinebaugh Creek.

The elevation of the base of the roadway north of the culvert that directs flow beneath PHR is approximately two feet higher than the invert of the culvert. Based on the topography of the roadside runoff would flow to the north along the base of PHR.

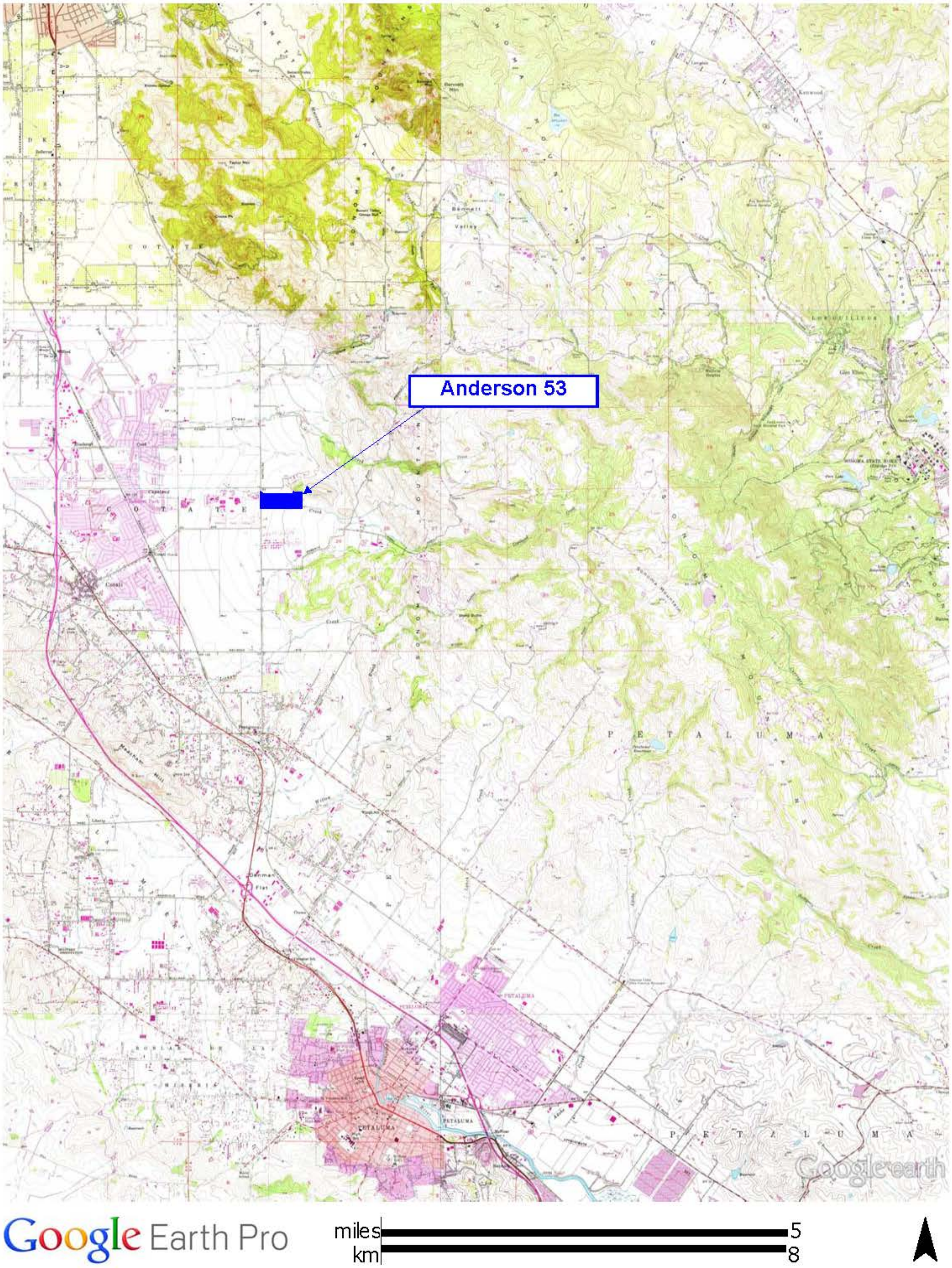

Figure 1. Site location map.

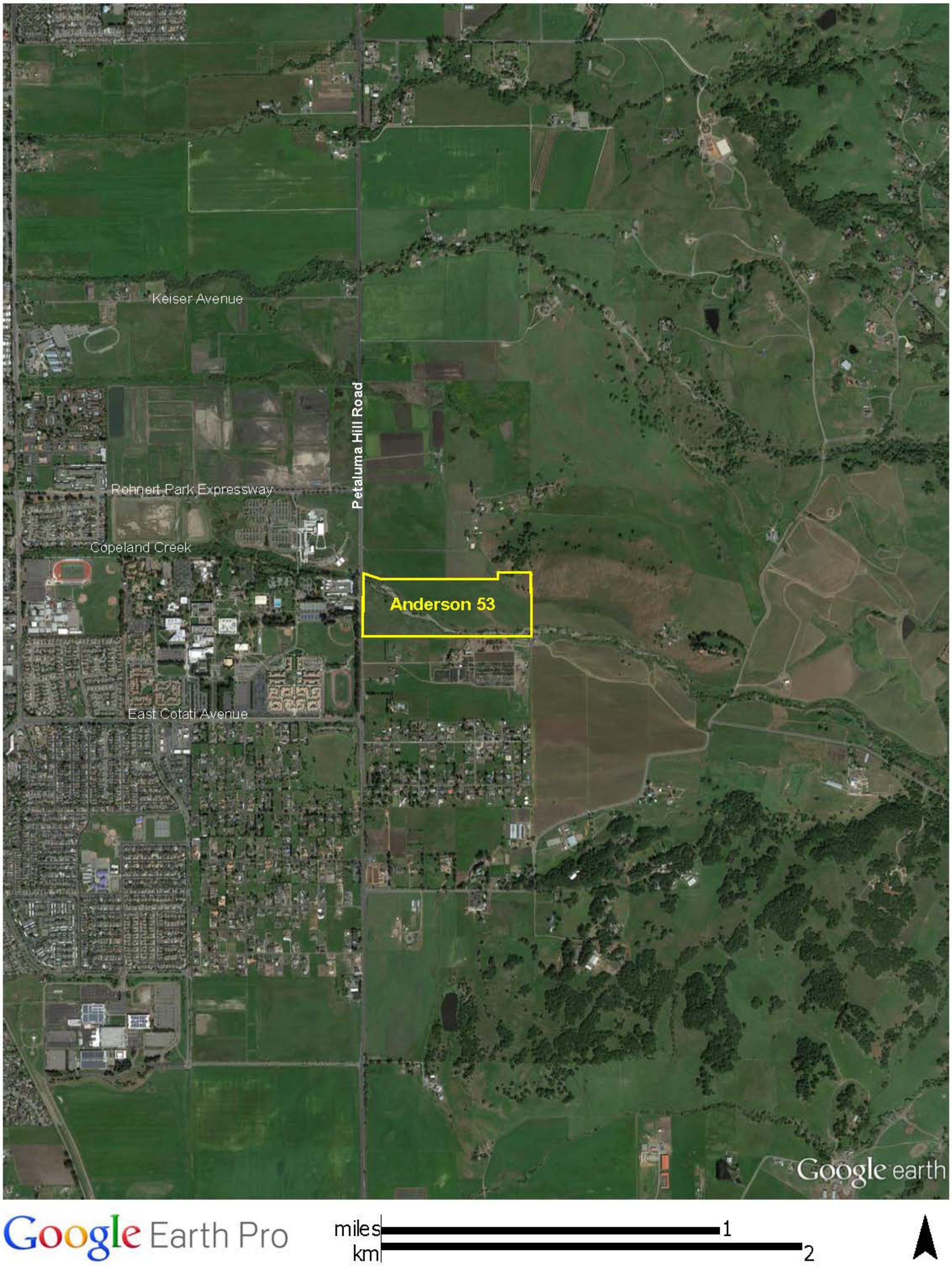

Figure 2. Site vicinity map.

2.2.2 Soils

The soils on the Site and along PHR are mapped by the Soil Conservation Service as Clear Lake clays with sandy substrate and Clear Lake clay loams (U. S. Department of Agriculture 1972; Figure 3). The Clear Lake clay and clay loam soils developed in mixed alluvial material on plains and flat basin areas under poorly drained conditions. The soils are characterized by variable clay content and lenses of cobble and other coarse soil that appear to mark abandoned traces of the Copeland Creek channel. Where present, the clay acts as a water-restricting horizon, causing water to accumulate in the surface soils and above ground in depressional terrain but generally, the soils at the Site appear to be well-drained. Regardless of the designated status as a hydric soil, the soils on Site have been commonly found to be well-drained because of the cobble lenses that carry infiltrated water toward Copeland Creek and elsewhere, leaving the surface soils drier than would be expected.

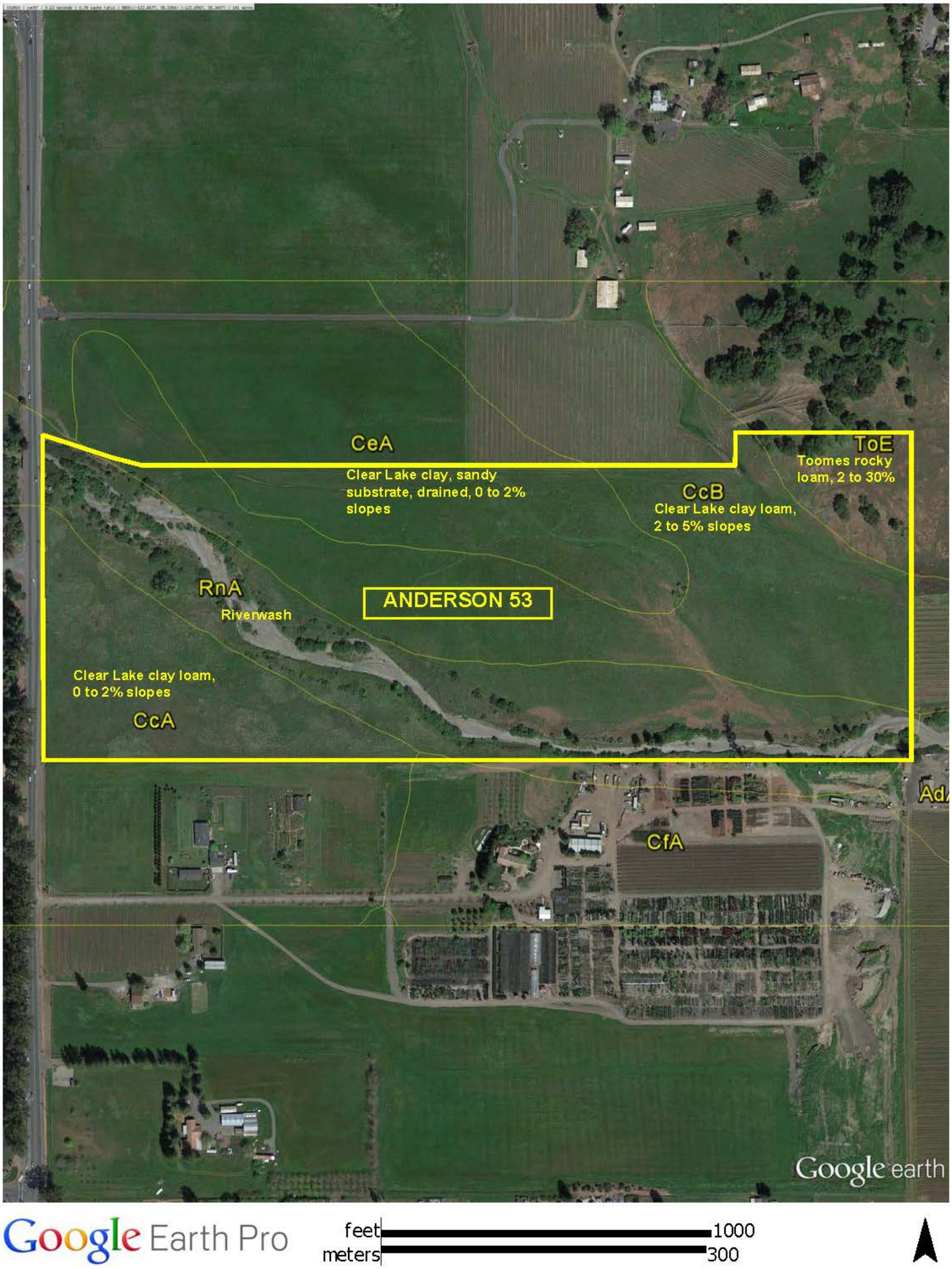

Figure 3. Soils map for the Anderson 53 site.

3.0 REGULATORY BACKGROUND

3.1 DEFINITIONS

3.1.1 Waters of the United States

Waters of the United States include "lakes, rivers, intermittent streams, mudflats, sandflats, sloughs, prairie potholes, wet meadows, playa lakes, and natural ponds the use, destruction, and/or degradation of which could affect interstate or foreign commerce" [Section 33, Code of Federal Regulations, Part 328.3(a)(3)].

The lateral extent of the Corps of Engineers' jurisdiction over lakes and drainages with defined beds and banks is the ordinary high water mark (OHW). Jurisdiction extends beyond ordinary high water where adjacent wetlands are present.

3.1.2 Wetlands

For the Corps of Engineers to regulate an area as a wetland under the Clean Water Act it must be "inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal conditions does support, a prevalence of vegetation typically adapted for life in saturated soil conditions" [33 CFR 328.3(b)]. Three criteria determine whether or not an area satisfies the definition under "normal circumstances." Under normal circumstances, hydrophytic vegetation, hydric soils, *and* a wetland hydrologic regime must be present for an area to be a wetland.

Hydrophytic Vegetation. Hydrophytic vegetation is dominated by plants adapted to wetland inundation or saturated soils because of physiological and reproductive adaptations. The U. S. Fish and Wildlife Service's National Wetlands Inventory has used field observations, expert opinion, and technical documents to identify wetland plant species and has developed wetland species lists which identify species which occur in wetlands.[1]

An area is considered vegetated if it has at least five percent vegetative cover. Indicators of hydrophytic vegetation include dominance of the vegetation by plant species with a wetland indicator status using absolute cover and the "50/20" rule; a prevalence indicator of 3.0 or less using numeric assignments to each indicator status (OBL = 1, FACW = 2, FAC = 3, FACU = 5, UPL = 5); or plant morphological adaptations such as adventitious roots, shallow root systems, including those on FACU species as long as they are detected on at least 50 percent of the FACU plants if the site is characterized by hydric soils and wetland hydrologic function.

Hydric Soils. Hydric soils are soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part

---

[1] Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. State of California 2016 Wetland Plant List. (http://wetland-plants.usace.army.mil/)

(Federal Register, July 13, 1994). Field indicators for identifying hydric soils are described in NRCS (2010) and summarized in the Arid West Manual.

The site is located in the Mediterranean California (LRR C) subregion of the Arid West Region. In non-sandy soils, prolonged anaerobic conditions cause chemical reactions, evidence of which can include sulfidic material, reduced soil conditions, an aquic or peraquic moisture regime, a gleyed soil matrix chroma, bright mottles and/or low matrix chroma, and iron and/or manganese concretions.

Although the physical properties described to assess the presence of hydric soils have not changed the new supplement for the Arid West Region lists several new hydric soil indicators that employ horizon thickness, soil matrix characteristics, the abundance and distinctness or prominence of redoximorphic features, and microtopography in setting indicator names. The indicators most likely to occur in soils on the Santa Rosa Plain include a depleted matrix (indicator F3), a redox dark surface (F6), a depleted dark surface (F7), redox depressions (F8), and vernal pools (V9).

Wetland Hydrology. Wetland hydrologic function or “hydrology" implies periodic inundation or soil saturation to the surface for some period during the growing season. Areas which have seasonally inundated or saturated to the surface for a consecutive number of days for more than 12.5 percent of the growing season are wetlands, provided the soil and vegetation parameters are met (soils with compacted surfaces may be inundated but remain unsaturated because of extremely low infiltration rates).

Areas that are inundated or saturated between five percent and 12.5 percent of the growing season may or may not be wetlands. The growing season for the central part of Sonoma County, which includes the Santa Rosa Plain, is defined in the Soil Survey for Sonoma County (U.S.D.A., Soil Conservation Service 1972) as between 230 and 260 days, but observations in the field indicate that some plant growth occurs year around.

In order for there to be wetland hydrology, the ground must be saturated and/or inundated for a minimum of five percent of the growing season, which would be between approximately 12 and 13 consecutive days using the estimated growing season from the county soil survey. Based on field observations of mid-winter plant growth (emergence of herbaceous plants; new crown development from perennial rootstocks; bud burst, leaf elongation, and flower development on woody plants) at the project site, the actual growing season for natural and naturalized vegetation is probably year around, which means that for wetland hydrology to be present the area must be inundated and/or saturated for a minimum of 18 consecutive days.

In addition to surface water and saturated soils (within the root zone) several other forms of field evidence indicate that a site may exhibit wetland hydrologic function. Such evidence includes water-matted plant material and water-stained leaves; cracks associated with shrink-swell soils; sediment and drift deposits; deep cattle hoof prints and soil "pedestals" standing above the surrounding ground (indicating periods of long saturation during the cattle grazing season); algal staining or crusts; water marks; drift lines; eggs of frogs, salamanders and other amphibians that breed in water; freshwater clams, snails; and other aquatic invertebrates; crayfish burrows.

4.0 METHODS

The status and the limit of the wetland on the site were determined using procedures for routine on-site determination as described in the *Regional Supplement to the Corps of Engineers' Wetland Manual; Arid West Region (Version 2.0)* (U. S. Army Corps of Engineers 2008) on August 8, 2013. At most sample locations, a series of paired sample sites distributed across the site were established and data on plant cover (absolute cover), soil characteristics and signs of hydrology were collected at each of the sample sites and recorded in a field notebook. Sample sites were located in areas that were dominated by OBL, FACW or FAC species and that showed surface indicators of hydrology.

The location of each sample point at the Site was staked using a numbered pin flag, and the coordinates of each sample point determined by surveyors following completion of the survey. The location of the sample points along PHR were determined by measuring the distance from known land mark features on the topographic map of PHR. The preliminary advisory maps were prepared by MacKay & Somps.

5.0 FINDINGS

The location and extent of the possible jurisdictional features occurring at the Site is shown on Figure 4. The location of sample points and possible jurisdictional features along the east side of PHR is shown on Figure 5. Appendix A contains the field data sheets (Wetland Determination Data Form – Arid West Region).

5.1 ANDERSON 53 SITE.

Other than the jurisdictional habitat within the channel banks of Copeland Creek, the jurisdictional features on the Site include two main drainage features and several isolated drainage features, and an undefined drainage swale that may not be subject to the Corps' jurisdiction.

The total area of the drainage features is approximately 0.568 acre (~27,729 sq. ft.). The approximately 0.081-acre drainage swale occurs toward the west end of the 53-acre Site. The map appended to this letter shows the location of these features. The map is a pre-jurisdictional determination that has not been verified.

The drainage at the base of the hill is well defined, and has a total area of 0.329 acre (~14,331 sq. ft.), and varies in width from eight to 20 feet. The bottom is 16 inches to three feet below the banks where the drainage is defined. The deeper areas are depressional, hold water longer, and are ponded throughout the winter rainy season and into the summer during depending on seasonal rainfall. The drainage is dominated by tall flatsedge (*Cyperus eragrostis*), curvepod yellowcress, rabbitsfoot grass, pennyroyal (*Mentha pulegium*), and spikerush. Subdominant species include ryegrass, bermuda grass (*Cynodon dactylon*), fiddle dock (*Rumex pulcher*), purple loosestrife, and cocklebur (*Xanthium* sp.). The wetland margin quickly transitions into annual grassland habitat dominated by those species found throughout the Anderson 53 Site.

The other defined drainage forms in the southeast quarter of the mitigation area, crosses through the center of the mitigation area, parallels the northern property line. The drainage has a total area of 0.238 acre (10,385 sq. ft.). This drainage is well defined along much of its eastern extent becoming more swale-like where the drainage assumes an east-west orientation. This western section of the drainage supports wetlands embedded within the swale.

The embedded wetlands along the western section of the partially defined drainage are dominated by California semaphore grass (*Pleuropogon californicus*) and common spikerush (*Eleochris macrostachya*), with ryegrass (*Festuca perennis*), rabbitsfoot grass (*Polypogon monspeliensis*), purple loosestrife (*Lythrum hyssopifolia*), and Mediterranean barley (*Hordeum murinum* ssp. *gussoneanum*) also being common.

The same species were also common along the eastern, more defined segment of the drainage, along with curvepod yellowcress (*Rorippa curvisiliqua*) being locally dominant in the deeper depressional areas along the drainage.

The swale at the western end of the drainage does not support wetlands and lacks a continuous ordinary high water mark that is characteristic of jurisdictional drainage features that lack wetland vegetation. The vegetation in the swale is similar that that observed on the surrounding uplands.

5.2 EAST SITE OF PETALUMA HILL ROAD

The area along the base of the eastern side of PHR between the entrance to the Anderson 53 Site and the intersection of Rohnert Park Expressway and PHR did not support any feature that met the technical definition of a jurisdictional wetlands, and except for a few isolated occurrences, there was not a defined bed and bank structure (lack of ordinary high water mark) along the base of the roadway.

South of the entrance to Anderson 53 the roadside area is dominated by Himalayan blackberry shrubs (*Rubus armeniacus*), a FAC species. There is no defined ditch and apparently water only flows to the south toward Copeland Creek if the culvert that runs beneath PHR is backed up. The upper bank of Copeland Creek is approximately 25 feet south of the southern side of the asphalt of the entrance driveway to the Anderson 53 Site.

The vegetation along the east side of PHR between the base of the road berm and the fence line along the western side of adjacent agricultural fields was, for the most part, dominated by FACU and UPL species with a few areas dominated by a mix of FAC and FACU or UPL species. Wild oats (*Avena barbata*), brome grasses (*Bromus diandrus*, *B. hordeaceus*), sweet fennel (*Foeniculum vulgare*), Queen Anne's lace (*Daucus carota*), Italian thistle (*Carduus pycnocephalus*), medusahead (*Elymus caput-medusae*), and Harding grass (*Phalaris aquatica*) were the more common and dominant FACU and UPL species occurring along the roadside area. Ryegrass and prickly oxtongue (*Helminthotheca echioides*) were the common FAC species observed along the base of the roadway. Other species observed included Indian teasel (*Dipsacus sativus*), six-weeks fescue (*Festuca bromoides*) and prickly lettuce (*Lactuca serriola*).

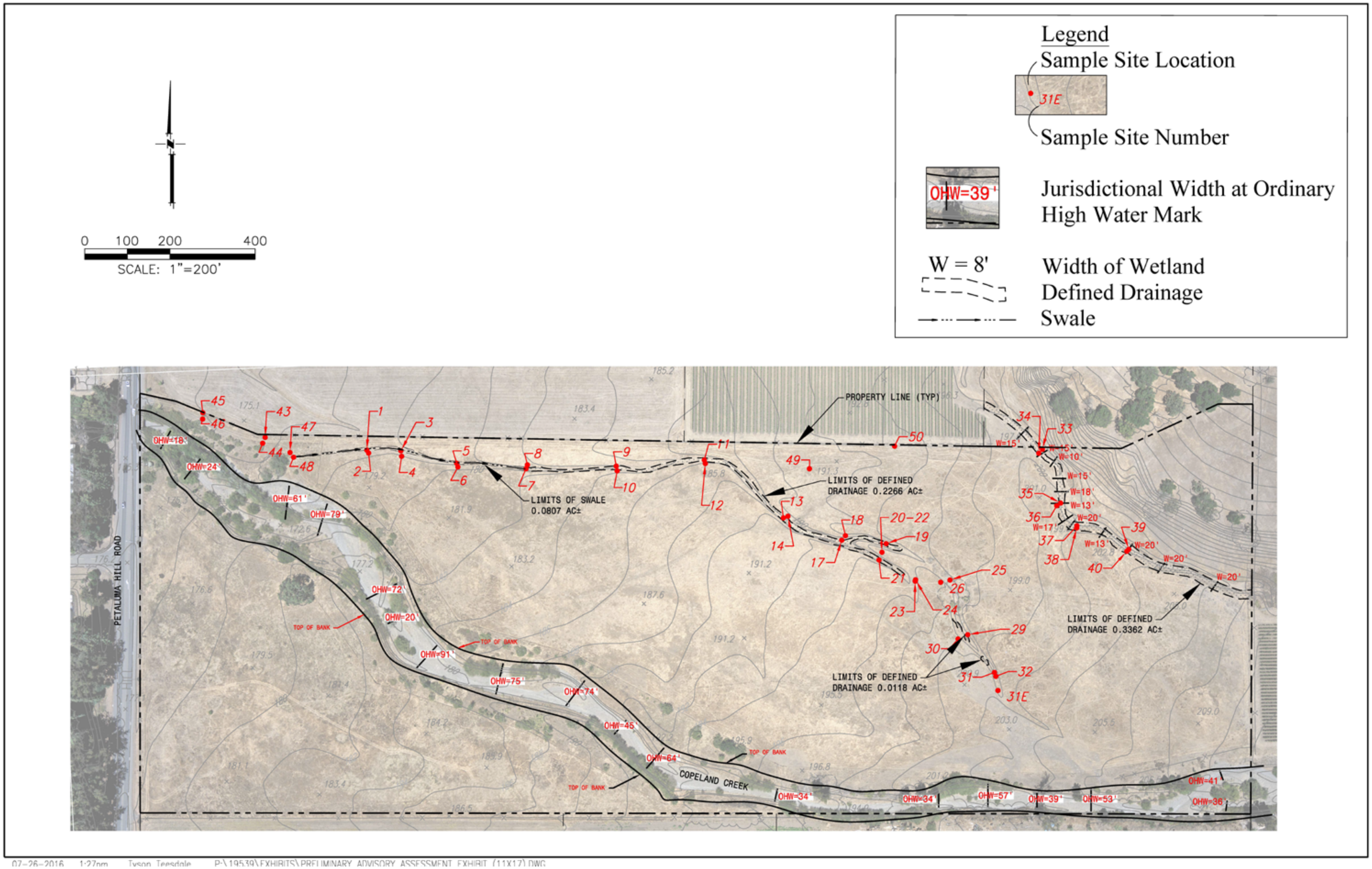

Figure 4. Preliminary advisory assessment jurisdictional map for the Anderson 53 Site.

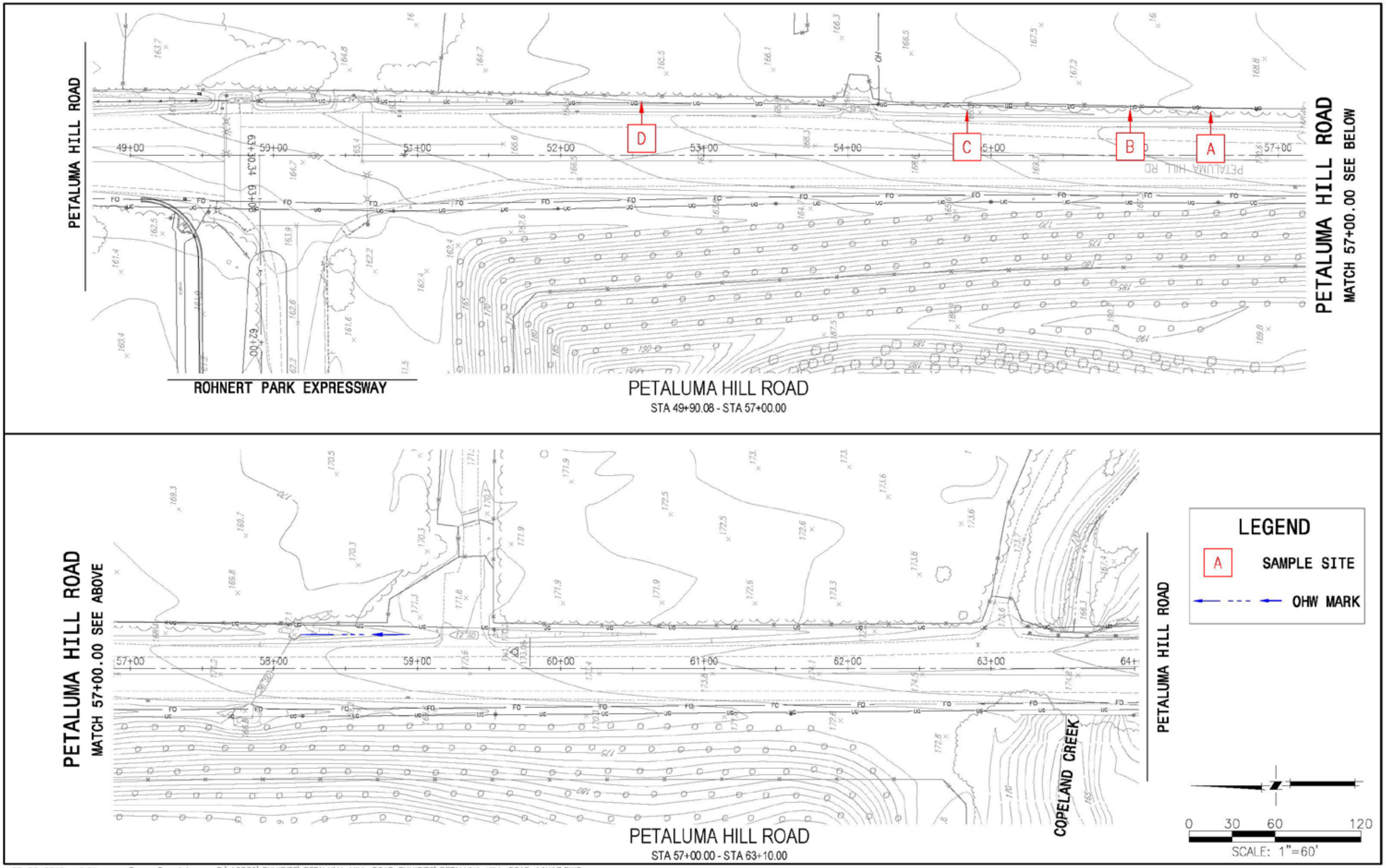

Figure 5. Preliminary advisory assessment jurisdictional map for the east side of Petaluma Hill Road.

6.0 REFERENCES CITED

U. S. Army Corps of Engineers. 2008. Regional Supplement to the Corps of Engineers' Wetland Manual; Arid West Region (Version 2.0). Wetlands Regulatory Assistance Program. ERDC/EL TR-08-28, September 2008.

U.S. Department of Agriculture, Natural Resources Conservation Service (NRDC). 2010. Field indicators of hydric soils in the United States. A guide for identifying and delineating hydric soils, version 7.0. L.M. Vasilas, B.W. Hurt and C.V. Noble (eds). USDA, NRCS in cooperation with the National Technical Committee for Hydric Soils.

APPENDIX A. FIELD DATA SHEETS

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Anderson 53 City/County: Sonoma County Sampling Date: June 2, 2016

Applicant/Owner: University District, LLC State: CA Sampling Point: 1

Investigator(s): L. Stromberg, D. Wiemeyer, T. Winfield Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): mixed Slope (%): <5%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.342442 Long: -122.666735 Datum: WSG84

Soil Map Unit Name: Clear Lake Clay, sandy substratum, drained, 0 to 2% slopes NWI classification: PEM2/Seasonal

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ___
Hydric Soil Present?	Yes ___	No ✓
Wetland Hydrology Present?	Yes ___	No ✓

Is the Sampled Area within a Wetland? **Yes** ___ **No** ✓

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Herb Stratum (Plot size: 1m^2)			
1. *Festuca perennis*	4	N	FAC
2. *Hordeum marinum gussoneanum*	4	N	FAC
3. *Lythrum hyssopifolium*	8	N	OBL
4. *Convolvulus arvensis*	3	N	UPL
5. *Polygonum arviculare*	3	N	FAC
= Total Cover			
Herb Stratum (Plot size: 1 m^2)			
1. *Pleuropogon californicus*	3	N	OBL
2. *Eleocharis palustris*	2	N	OBL
3. *Polypogon monospeliensis*	3	N	FACW
4.			
5.			
6.			
7.			
8.			
= Total Cover	30		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 70 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	0	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0.0	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	13	x 1 = 13
FACW species	3	x 2 = 6
FAC species	11	x 3 = 33
FACU species	0	x 4 = 0
UPL species	3	x 5 = 15
Column Totals:	30 (A)	67 (B)

Prevalence Index = B/A = 2.23

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ✓ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

Remarks:

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-9	10 YR 3/2	100					grav-loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ______ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No ✓ Depth (inches): ______
Water Table Present? Yes ______ No ✓ Depth (inches): ______
Saturation Present? (includes capillary fringe) Yes ______ No ✓ Depth (inches): ______

Wetland Hydrology Present? Yes ______ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Anderson 53 City/County: Sonoma County Sampling Date: June 2, 2016

Applicant/Owner: University District, LLC State: CA Sampling Point: 2

Investigator(s): L. Stromberg, D. Wiemeyer, T. Winfield Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): mixed Slope (%): <5%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.342442 Long: -122.666735 Datum: WSG84

Soil Map Unit Name: Clear Lake Clay, sandy substratum, drained, 0 to 2% slopes NWI classification: PEM2/Seasonal

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?		✓
Hydric Soil Present?		✓
Wetland Hydrology Present?		✓

Is the Sampled Area within a Wetland? Yes ____ No ✓

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Herb Stratum (Plot size: 1m^2)			
1. *Festuca perennis*	30	Y	FAC
2. *Phalaris aquatica*	20	Y	FACU
3. *Vicia sativa*	5	N	UPL
4. *Convolvulus arvensis*	2	N	UPL
5. *Avena barbata*	5	N	UPL
= Total Cover			
Herb Stratum (Plot size: 1 m^2)			
1. *Elymus caput-medusae*	25	Y	UPL
2. *Rumex pulcher*	3	N	FAC
3. *Juncus tenuis*	3	N	FACW
4. *Hordeum marinum ssp. gussoneanum*	3	N	FAC
5. *Festuca bromoides*	15	N	FAC
6. *Medicago polymorpha*	2	N	FAC
7.			
8.			
= Total Cover	113		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	3	x 2 = 6
FAC species	53	x 3 = 159
FACU species	20	x 4 = 80
UPL species	37	x 5 = 185
Column Totals:	113 (A)	430 (B)

Prevalence Index = B/A = 3.8

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:

SOIL

Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	10 YR 3/2	55	10 YR 3/1	40	d	m	clay loam	faint mottles
			10 YR 4/3	5	d	m	clay loam	faint mottles

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ______ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No ✓ Depth (inches): ______

Water Table Present? Yes ______ No ✓ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ______ No ✓ Depth (inches): ______

Wetland Hydrology Present? Yes ______ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Anderson 53 City/County: Sonoma County Sampling Date: June 2, 2016

Applicant/Owner: University District, LLC State: CA Sampling Point: 3

Investigator(s): L. Stromberg, D. Wiemeyer, T. Winfield Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): mixed Slope (%): <5%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.342442 Long: -122.666735 Datum: WSG84

Soil Map Unit Name: Clear Lake Clay, sandy substratum, drained, 0 to 2% slopes NWI classification: PEM2/Seasonal

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?		✓
Hydric Soil Present?		✓
Wetland Hydrology Present?		✓

Is the Sampled Area within a Wetland? Yes ___ No ✓

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Herb Stratum (Plot size: 1m^2)			
1. *Croton setigerus*	40	Y	UPL
2. *Rumex pulcher*	5	N	FAC
3. *Lythrum hyssopifolium*	3	N	OBL
4. *Pleuropogon californicus*	5	N	OBL
5. *Polygonum arviculare*	2	N	FAC
= Total Cover			
Herb Stratum (Plot size: 1 m^2)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover	55		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 45 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	8	x 1 =	8
FACW species	0	x 2 =	0
FAC species	7	x 3 =	21
FACU species	0	x 4 =	0
UPL species	40	x 5 =	200
Column Totals:	55 (A)		229 (B)

Prevalence Index = B/A = 4.16

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No ✓

Remarks:

SOIL

Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10 YR 2/2	99	4.5 YR 4/4	1	d	m	clay loam	w/ gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ____________

Depth (inches): ____________

Hydric Soil Present? Yes ______ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No ✓ Depth (inches): ____________
Water Table Present? Yes ______ No ✓ Depth (inches): ____________
Saturation Present? (includes capillary fringe) Yes ______ No ✓ Depth (inches): ____________

Wetland Hydrology Present? Yes ______ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Anderson 53 City/County: Sonoma County Sampling Date: June 2, 2016

Applicant/Owner: University District, LLC State: CA Sampling Point: 4

Investigator(s): L. Stromberg, D. Wiemeyer, T. Winfield Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): mixed Slope (%): <5%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.342442 Long: -122.666735 Datum: WSG84

Soil Map Unit Name: Clear Lake Clay, sandy substratum, drained, 0 to 2% slopes NWI classification: PEM2/Seasonal

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___	No ✓
Hydric Soil Present?	Yes ___	No ✓
Wetland Hydrology Present?	Yes ___	No ✓

Is the Sampled Area within a Wetland? Yes ___ No ✓

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Herb Stratum (Plot size: 1m^2)			
1. *Elymus caput-medusae*	50	Y	UPL
2. *Bromus hordeaceaus*	5	N	FACU
3. *Festuca perennis*	40	Y	FAC
4. *Vicia sativa*	5	N	UPL
5. *Festuca bromoides*	1	N	UPL
= Total Cover			
Herb Stratum (Plot size: 1 m^2)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover	101		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	40	x 3 = 120
FACU species	5	x 4 = 20
UPL species	56	x 5 = 280
Column Totals:	101 (A)	420 (B)

Prevalence Index = B/A = 4.16

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No ✓

Remarks:

SOIL

Sampling Point: 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2.5	10 YR 3/2	50	10 YR 2/1.5	50			clay loam	mixed matrix
2.5-12	10 YR 2/1	100					clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ______ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No ✓ Depth (inches): ______

Water Table Present? Yes ______ No ✓ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ______ No ✓ Depth (inches): ______

Wetland Hydrology Present? Yes ______ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Anderson 53 City/County: Sonoma County Sampling Date: June 2, 2016

Applicant/Owner: University District, LLC State: CA Sampling Point: 5

Investigator(s): L. Stromberg, D. Wiemeyer, T. Winfield Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): mixed Slope (%): <5%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.342442 Long: -122.666735 Datum: WSG84

Soil Map Unit Name: Clear Lake Clay, sandy substratum, drained, 0 to 2% slopes NWI classification: PEM2/Seasonal

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?	✓	
Hydric Soil Present?		✓
Wetland Hydrology Present?	✓	
Is the Sampled Area within a Wetland?		✓

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Herb Stratum (Plot size: 1m^2)			
1. *Festuca perennis*	40	Y	FAC
2. *Phalaris aquatica*	10	N	FACU
3. *Vicia sativa*	3	N	UPL
4. *Polypogon monspeliensis*	2	N	FACW
5. *Lythrum hyssopifolium*	2	N	OBL
= Total Cover			
Herb Stratum (Plot size: 1 m^2)			
1. *Elymus caput-medusae*	2	N	UPL
2. *Hordeum marinum ssp. gussoneanum*	15	N	FAC
3. *Pleuropogon californicus*	30	Y	OBL
4.			
5.			
6.			
7.			
8.			
= Total Cover	104		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 3 % Cover of Biotic Crust 5

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	32	x 1 = 32
FACW species	2	x 2 = 4
FAC species	55	x 3 = 165
FACU species	10	x 4 = 40
UPL species	5	x 5 = 25
Column Totals:	104 (A)	266 (B)

Prevalence Index = B/A = 2.56

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks:

SOIL

Sampling Point: 5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10 YR 3/2	100					clay loam	
8-12	10 YR 3/2	60	10 YR 3/1	30	d	m	clay loam	faint mottles
			10 YR 4/3	10	d	m	clay loam	faint mottles

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ________

Depth (inches): ________

Hydric Soil Present? Yes ____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
✓ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
✓ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): ____
Water Table Present? Yes ____ No ✓ Depth (inches): ____
Saturation Present? (includes capillary fringe) Yes ____ No ✓ Depth (inches): ____

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Anderson 53 City/County: Sonoma County Sampling Date: June 2, 2016

Applicant/Owner: University District, LLC State: CA Sampling Point: 6

Investigator(s): L. Stromberg, D. Wiemeyer, T. Winfield Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): mixed Slope (%): <5%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.342442 Long: -122.666735 Datum: WSG84

Soil Map Unit Name: Clear Lake Clay, sandy substratum, drained, 0 to 2% slopes NWI classification: PEM2/Seasonal

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ______ (If no, explain in Remarks.)

Are Vegetation ______, Soil ______, or Hydrology ______ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ______

Are Vegetation ______, Soil ______, or Hydrology ______ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ______	No ✓	**Is the Sampled Area within a Wetland?** Yes ______ No ✓
Hydric Soil Present?	Yes ______	No ✓	
Wetland Hydrology Present?	Yes ______	No ✓	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Herb Stratum (Plot size: 1m^2)			
1. *Festuca perennis*	30	Y	FAC
2. *Avena barbata*	20	Y	UPL
3. *Vicia sativa*	2	N	UPL
4. *Festuca bromoides*	5	N	FAC
5. *Briza minor*	1	N	FAC
= Total Cover			
Herb Stratum (Plot size: 1 m^2)			
1. *Elymus caput-medusae*	40	Y	UPL
2. *Hordeum marinum ssp. gussoneanum*	5	N	FAC
3. *Parentucellia viscosa*	1	N	FAC
4. *Bromus hordeaceus*	10	N	FACU
5.			
6.			
7.			
8.			
= Total Cover	114		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	42	x 3 = 126
FACU species	10	x 4 = 40
UPL species	62	x 5 = 310
Column Totals:	114 (A)	476 (B)

Prevalence Index = B/A = 4.17

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ______ No ✓

Remarks:

SOIL

Sampling Point: 6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10 YR 2/2	80	10 YR 3/2	20			clay	mixed matrix; faint mottles

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ____________

Depth (inches): ____________

Hydric Soil Present? Yes ______ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No ✓ Depth (inches): ____________

Water Table Present? Yes ______ No ✓ Depth (inches): ____________

Saturation Present? (includes capillary fringe) Yes ______ No ✓ Depth (inches): ____________

Wetland Hydrology Present? Yes ______ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Anderson 53 City/County: Sonoma County Sampling Date: June 2, 2016

Applicant/Owner: University District, LLC State: CA Sampling Point: 7

Investigator(s): L. Stromberg, D. Wiemeyer, T. Winfield Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): mixed Slope (%): <5%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.342442 Long: -122.666735 Datum: WSG84

Soil Map Unit Name: Clear Lake Clay, sandy substratum, drained, 0 to 2% slopes NWI classification: PEM2/Seasonal

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?	✓	
Hydric Soil Present?		✓
Wetland Hydrology Present?	✓	
Is the Sampled Area within a Wetland?		✓

Remarks:

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
= Total Cover			
Herb Stratum (Plot size: 1m^2)			
1. *Festuca perennis*	20	Y	FAC
2. *Juncus tenuis*	10	N	FACW
3. *Vicia sativa*	2	N	UPL
4. *Polypogon monspeliensis*	2	N	FACW
5. *Lythrum hyssopifolium*	3	N	OBL
= Total Cover			
Herb Stratum (Plot size: 1 m^2)			
1. *Eleocharis macrostachya*	30	Y	OBL
2. *Hordeum marinum ssp. gussoneanum*	5	N	FAC
3. *Pleuropogon californicus*	35	Y	OBL
4. *Convolvulus arvensis*	1	N	UPL
5. *Polygonum aviculare*	1	N	FACW
6.			
7.			
8.			
= Total Cover	109		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	68	x 1 = 68
FACW species	13	x 2 = 26
FAC species	25	x 3 = 75
FACU species	0	x 4 = 0
UPL species	3	x 5 = 15
Column Totals:	109 (A)	184 (B)

Prevalence Index = B/A = 1.69

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks:

SOIL

Sampling Point: 7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	10 YR 3/2	100					clay	
3-8	10 YR 2/2	100					clay	
8-12	10 YR 2/2	60	10 YR 3/2	30	c	m	clay	faint mottles
			10 YR 4/3	10	c	m	clay	faint mottles

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ____________

Depth (inches): ____________

Hydric Soil Present? Yes ______ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
✓ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No ✓ Depth (inches): ____________
Water Table Present? Yes ______ No ✓ Depth (inches): ____________
Saturation Present? (includes capillary fringe) Yes ______ No ✓ Depth (inches): ____________

Wetland Hydrology Present? Yes ✓ No ______

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Anderson 53 City/County: Sonoma County Sampling Date: June 2, 2016

Applicant/Owner: University District, LLC State: CA Sampling Point: 8

Investigator(s): L. Stromberg, D. Wiemeyer, T. Winfield Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): mixed Slope (%): <5%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.342442 Long: -122.666735 Datum: WSG84

Soil Map Unit Name: Clear Lake Clay, sandy substratum, drained, 0 to 2% slopes NWI classification: PEM2/Seasonal

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?		✓
Hydric Soil Present?		✓
Wetland Hydrology Present?		✓
Is the Sampled Area within a Wetland?		✓

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
		= Total Cover	
Herb Stratum (Plot size: 1m^2)			
1. *Festuca perennis*	25	Y	FAC
2. *Avena barbata*	25	Y	UPL
3. *Vicia sativa*	1	N	UPL
4. *Festuca bromoides*	15	N	FAC
5. *Convolvulus arvensis*	3	N	UPL
		= Total Cover	
Herb Stratum (Plot size: 1 m^2)			
1. *Elymus caput-medusae*	35	Y	UPL
2. *Hordeum marinum ssp. gussoneanum*	5	N	FAC
3. *Briza minor*	2	N	FAC
4. *Bromus hordeaceus*	3	N	FACU
5.			
6.			
7.			
8.			
	114	= Total Cover	
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	47	x 3 = 141
FACU species	3	x 4 = 12
UPL species	64	x 5 = 320
Column Totals:	114 (A)	473 (B)

Prevalence Index = B/A = 4.15

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No ✓

Remarks:

SOIL

Sampling Point: 8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10 YR 3/2	60	10 YR 2/2	40			clay loam	mixed matrix; faint mottles
4-12	10 YR 3/2	60	10 YR 2/2	40			clay	mixed matrix; faint mottles

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ______ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No ✓ Depth (inches): ______

Water Table Present? Yes ______ No ✓ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ______ No ✓ Depth (inches): ______

Wetland Hydrology Present? Yes ______ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Anderson 53 City/County: Sonoma County Sampling Date: June 2, 2016

Applicant/Owner: University District, LLC State: CA Sampling Point: 9

Investigator(s): L. Stromberg, D. Wiemeyer, T. Winfield Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): mixed Slope (%): <5%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.342442 Long: -122.666735 Datum: WSG84

Soil Map Unit Name: Clear Lake Clay, sandy substratum, drained, 0 to 2% slopes NWI classification: PEM2/Seasonal

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?**	**Yes ✓ No ____**
Hydric Soil Present?	Yes ✓ No ____		
Wetland Hydrology Present?	Yes ✓ No ____		

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Herb Stratum (Plot size: 1m^2)			
1. *Pleuropogon californicus*	80	Y	OBL
2. *Eleocharis macrostachya*	10	N	OBL
3. *Convolvulus arvensis*	3	N	UPL
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 1 m^2)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover	93		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 7 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	90	x 1 =	90
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	3	x 5 =	15
Column Totals:	93 (A)		105 (B)

Prevalence Index = B/A = 1.13

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

Sampling Point: 9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10 YR 3/2	70	10 YR 3/4	30	c	m	loam	mixed matrix
4-12	10 YR 3/2	60	10 YR 3/4	40	c	m	clay loam	mixed matrix

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ✓ **No** ______

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ✓ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No ✓ Depth (inches): ______

Water Table Present? Yes ______ No ✓ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ______ No ✓ Depth (inches): ______

Wetland Hydrology Present? Yes ✓ **No** ______

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Anderson 53 City/County: Sonoma County Sampling Date: June 2, 2016

Applicant/Owner: University District, LLC State: CA Sampling Point: 10

Investigator(s): L. Stromberg, D. Wiemeyer, T. Winfield Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): mixed Slope (%): <5%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.342442 Long: -122.666735 Datum: WSG84

Soil Map Unit Name: Clear Lake Clay, sandy substratum, drained, 0 to 2% slopes NWI classification: PEM2/Seasonal

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___	No ✓
Hydric Soil Present?	Yes ___	No ✓
Wetland Hydrology Present?	Yes ___	No ✓

Is the Sampled Area within a Wetland? Yes ___ No ✓

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Herb Stratum (Plot size: 1m^2)			
1. *Avena barbata*	9	N	UPL
2. *Elymus caput-medusae*	70	Y	UPL
3. *Bromus hordeaceaus*	10	N	FACW
4. *Phalaris aquatica*	1	N	FACU
5. *Festuca perennis*	10	N	FAC
= Total Cover			
Herb Stratum (Plot size: 1 m^2)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	10	x 2 = 20
FAC species	10	x 3 = 30
FACU species	1	x 4 = 4
UPL species	79	x 5 = 395
Column Totals:	100 (A)	449 (B)

Prevalence Index = B/A = 4.49

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No ✓

Remarks:

SOIL

Sampling Point: 10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10 YR 2/2	60	10 YR 3/2	40			clay loam	mixed matrix; faint mottles

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______________

Depth (inches): ______________

Hydric Soil Present? Yes ______ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No ✓ Depth (inches): ______
Water Table Present? Yes ______ No ✓ Depth (inches): ______
Saturation Present? (includes capillary fringe) Yes ______ No ✓ Depth (inches): ______

Wetland Hydrology Present? Yes ______ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Anderson 53 City/County: Sonoma County Sampling Date: June 2, 2016

Applicant/Owner: University District, LLC State: CA Sampling Point: 11

Investigator(s): L. Stromberg, D. Wiemeyer, T. Winfield Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): mixed Slope (%): <5%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.342442 Long: -122.666735 Datum: WSG84

Soil Map Unit Name: Clear Lake Clay, sandy substratum, drained, 0 to 2% slopes NWI classification: PEM2/Seasonal

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ____
Hydric Soil Present?	Yes ✓	No ____
Wetland Hydrology Present?	Yes ✓	No ____

Is the Sampled Area within a Wetland? Yes ✓ No ____

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Herb Stratum (Plot size: 1m^2)			
1. *Pleuropogon californicus*	45	Y	OBL
2. *Eleocharis macrostachya*	40	Y	OBL
3. *Festuca perennis*	10	N	FAC
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 1 m^2)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover	95		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	85	x 1 =	85
FACW species	0	x 2 =	0
FAC species	10	x 3 =	30
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	95 (A)		115 (B)

Prevalence Index = B/A = 1.21

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

Sampling Point: 11

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-5	10 YR 2/1	95	7.5 YR 4/4	>5	c	m	loam	
5-12	10 YR 2/1	99	7.5 YR 4/4	1	c	m	silty loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ____________

Depth (inches): ____________

Hydric Soil Present? **Yes** ✓ **No** ______

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ✓ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No ✓ Depth (inches): ____________

Water Table Present? Yes ______ No ✓ Depth (inches): ____________

Saturation Present? (includes capillary fringe) Yes ______ No ✓ Depth (inches): ____________

Wetland Hydrology Present? **Yes** ✓ **No** ______

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Anderson 53 City/County: Sonoma County Sampling Date: June 2, 2016

Applicant/Owner: University District, LLC State: CA Sampling Point: 12

Investigator(s): L. Stromberg, D. Wiemeyer, T. Winfield Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): mixed Slope (%): <5%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.342442 Long: -122.666735 Datum: WSG84

Soil Map Unit Name: Clear Lake Clay, sandy substratum, drained, 0 to 2% slopes NWI classification: PEM2/Seasonal

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___	No ✓
Hydric Soil Present?	Yes ___	No ✓
Wetland Hydrology Present?	Yes ___	No ✓

Is the Sampled Area within a Wetland? Yes ___ No ✓

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Herb Stratum (Plot size: 1m^2)			
1. *Avena barbata*	30	Y	UPL
2. *Elymus caput-medusae*	40	Y	UPL
3. *Vicia sativa*	1	N	UPL
4. *Convolvulus arvensis*	10	N	UPL
5. *Festuca perennis*	20	Y	FAC
= Total Cover			
Herb Stratum (Plot size: 1 m^2)			
1. *Lactuca serriola*	1	N	FACU
2. *Carduus pycnocephalus*	1	N	UPL
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover	103		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	20	x 3 = 60
FACU species	1	x 4 = 4
UPL species	82	x 5 = 410
Column Totals:	103 (A)	474 (B)

Prevalence Index = B/A = 4.60

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No ✓

Remarks:

SOIL

Sampling Point: 12

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10 YR 2/2	100					clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ______ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No ✓ Depth (inches): ______

Water Table Present? Yes ______ No ✓ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ______ No ✓ Depth (inches): ______

Wetland Hydrology Present? Yes ______ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Anderson 53 City/County: Sonoma County Sampling Date: June 2, 2016

Applicant/Owner: University District, LLC State: CA Sampling Point: 13

Investigator(s): L. Stromberg, D. Wiemeyer, T. Winfield Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): mixed Slope (%): <5%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.342442 Long: -122.666735 Datum: WSG84

Soil Map Unit Name: Clear Lake Clay, sandy substratum, drained, 0 to 2% slopes NWI classification: PEM2/Seasonal

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ___	**Is the Sampled Area within a Wetland?** Yes ✓ No ___
Hydric Soil Present?	Yes ✓ No ___	
Wetland Hydrology Present?	Yes ✓ No ___	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Herb Stratum (Plot size: 1m^2)			
1. *Festuca perennis*	40	Y	FAC
2. *Rumex pulcher*	2	N	FAC
3. *Vicia sativa*	2	N	UPL
4. *Polypogon monspeliensis*	15	N	FACW
5. *Briza minor*	1	N	FAC
= Total Cover			
Herb Stratum (Plot size: 1 m^2)			
1. *Phalaris aquatica*	10	N	FACU
2. *Hordeum marinum ssp. gussoneanum*	25	Y	FAC
3. *Parentucellia viscosa*	1	N	FAC
4. *Rorippa curvisiliqua*	15	N	OBL
5.			
6.			
7.			
8.			
= Total Cover	111		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	15	x 1 = 15
FACW species	15	x 2 = 30
FAC species	69	x 3 = 207
FACU species	10	x 4 = 40
UPL species	2	x 5 = 10
Column Totals:	111 (A)	302 (B)

Prevalence Index = B/A = 2.72

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks:

SOIL

Sampling Point: 13

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-8	10 YR 2/2	80	10 YR 3/4	20	c	m	clay loam	large cobbles
8-12	10 YR 2/2	60	10 YR 3/2	30	c	m	clay loam	large cobbles
			10 YR 4/6	10	c	m	clay loam	large cobbles

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ✓ **No** ______

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No ✓ Depth (inches): ______

Water Table Present? Yes ______ No ✓ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ______ No ✓ Depth (inches): ______

Wetland Hydrology Present? Yes ✓ **No** ______

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Anderson 53 City/County: Sonoma County Sampling Date: June 2, 2016

Applicant/Owner: University District, LLC State: CA Sampling Point: 14

Investigator(s): L. Stromberg, D. Wiemeyer, T. Winfield Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): mixed Slope (%): <5%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.342442 Long: -122.666735 Datum: WSG84

Soil Map Unit Name: Clear Lake Clay, sandy substratum, drained, 0 to 2% slopes NWI classification: PEM2/Seasonal

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?		✓
Hydric Soil Present?		✓
Wetland Hydrology Present?		✓
Is the Sampled Area within a Wetland?		✓

Remarks:

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
= Total Cover			
Herb Stratum (Plot size: 1m^2)			
1. *Festuca perennis*	30	Y	FAC
2. *Avena barbata*	40	Y	UPL
3. *Vicia sativa*	2	N	UPL
4. *Festuca bromoides*	10	N	FAC
5. *Medicago polymorpha*	2	N	FACU
= Total Cover			
Herb Stratum (Plot size: 1 m^2)			
1. *Elymus caput-medusae*	20	Y	UPL
2. *Lactuca serriola*	1	N	FACU
3. *Briza minor*	1	N	FAC
4. *Bromus hordeaceus*	5	N	FACU
5.			
6.			
7.			
8.			
= Total Cover	111		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	41	x 3 =	123
FACU species	8	x 4 =	32
UPL species	62	x 5 =	310
Column Totals:	111 (A)		465 (B)

Prevalence Index = B/A = 4.19

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No ✓

Remarks:

SOIL

Sampling Point: 14

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10 YR 3/1	100					clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ______ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No ✓ Depth (inches): ______

Water Table Present? Yes ______ No ✓ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ______ No ✓ Depth (inches): ______

Wetland Hydrology Present? Yes ______ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Anderson 53 City/County: Sonoma County Sampling Date: June 2, 2016

Applicant/Owner: University District, LLC State: CA Sampling Point: 17

Investigator(s): L. Stromberg, D. Wiemeyer, T. Winfield Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): mixed Slope (%): <5%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.342442 Long: -122.666735 Datum: WSG84

Soil Map Unit Name: Clear Lake Clay, sandy substratum, drained, 0 to 2% slopes NWI classification: PEM2/Seasonal

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ___	Is the Sampled Area within a Wetland? Yes ✓ No ___
Hydric Soil Present?	Yes ✓ No ___	
Wetland Hydrology Present?	Yes ✓ No ___	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Herb Stratum (Plot size: 1m^2)			
1. *Rorippa curvisiliqua*	70	Y	OBL
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 1 m^2)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover	70		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 30 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	70	x 1 = 70
FACW species	0	x 2 = 0
FAC species	0	x 3 = 0
FACU species	0	x 4 = 0
UPL species	0	x 5 = 0
Column Totals:	70 (A)	70 (B)

Prevalence Index = B/A = 1.00

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks:

SOIL

Sampling Point: 17

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	10 YR 2/2	96	7.5 YR 4/4	4	c	m	clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? **Yes** ✓ **No** ______

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ✓ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

	Yes	No	Depth (inches)
Surface Water Present?		✓	
Water Table Present?		✓	
Saturation Present? (includes capillary fringe)		✓	

Wetland Hydrology Present? **Yes** ✓ **No** ______

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Anderson 53 City/County: Sonoma County Sampling Date: June 2, 2016

Applicant/Owner: University District, LLC State: CA Sampling Point: 18

Investigator(s): L. Stromberg, D. Wiemeyer, T. Winfield Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): mixed Slope (%): <5%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.342442 Long: -122.666735 Datum: WSG84

Soil Map Unit Name: Clear Lake Clay, sandy substratum, drained, 0 to 2% slopes NWI classification: PEM2/Seasonal

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?		✓
Hydric Soil Present?		✓
Wetland Hydrology Present?		✓
Is the Sampled Area within a Wetland?		✓

Remarks:

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
= Total Cover			
Herb Stratum (Plot size: 1m^2)			
1. *Bromus diandrus*	25	Y	UPL
2. *Avena barbata*	60	Y	UPL
3. *Vicia sativa*	2	N	UPL
4. *Parentucellia viscosa*	1	N	FAC
5.	2	N	FACU
= Total Cover			
Herb Stratum (Plot size: 1 m^2)			
1. *Elymus caput-medusae*	10	N	UPL
2. *Carduus pycnocephalus*	2	N	UPL
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover	102		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	1	x 3 =	3
FACU species	2	x 4 =	8
UPL species	99	x 5 =	495
Column Totals:	102 (A)		506 (B)

Prevalence Index = B/A = 4.96

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No ✓

Remarks:

SOIL

Sampling Point: 18

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-14	10 YR 2/2	100					clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ______ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No ✓ Depth (inches): ______
Water Table Present? Yes ______ No ✓ Depth (inches): ______
Saturation Present? (includes capillary fringe) Yes ______ No ✓ Depth (inches): ______

Wetland Hydrology Present? Yes ______ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Anderson 53 City/County: Sonoma County Sampling Date: June 2, 2016

Applicant/Owner: University District, LLC State: CA Sampling Point: 19

Investigator(s): L. Stromberg, D. Wiemeyer, T. Winfield Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): mixed Slope (%): <5%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.342442 Long: -122.666735 Datum: WSG84

Soil Map Unit Name: Clear Lake Clay, sandy substratum, drained, 0 to 2% slopes NWI classification: PEM2/Seasonal

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ____
Hydric Soil Present?	Yes ✓	No ____
Wetland Hydrology Present?	Yes ✓	No ____

Is the Sampled Area within a Wetland? **Yes ✓** **No ____**

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Herb Stratum (Plot size: 1m^2)			
1. *Festuca perennis*	70	Y	FAC
2. *Rumex pulcher*	10	N	FAC
3. *Hordeum marinum ssp. gussoneanum*	30	Y	FAC
4. *Briza minor*	1	N	FAC
5. *Medicago polymorpha*	1	N	UPL
= Total Cover			
Herb Stratum (Plot size: 1 m^2)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover	112		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	111	x 3 =	333
FACU species	0	x 4 =	0
UPL species	1	x 5 =	5
Column Totals:	112 (A)		338 (B)

Prevalence Index = B/A = 3.01

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

__ Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ✓** **No ____**

Remarks:

SOIL

Sampling Point: 19

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-5	10 YR 3/1	100					clay loam	large cobbles
5-12	10 YR 3/1	75	10 YR 3/3	20	c	m	clay loam	large cobbles
			10 YR 4/4	5	c	m	clay loam	large cobbles

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ✓ No ______

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No ✓ Depth (inches): ______

Water Table Present? Yes ______ No ✓ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ______ No ✓ Depth (inches): ______

Wetland Hydrology Present? Yes ✓ No ______

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Anderson 53 City/County: Sonoma County Sampling Date: June 2, 2016

Applicant/Owner: University District, LLC State: CA Sampling Point: 20-22

Investigator(s): L. Stromberg, D. Wiemeyer, T. Winfield Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): mixed Slope (%): <5%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.342442 Long: -122.666735 Datum: WSG84

Soil Map Unit Name: Clear Lake Clay, sandy substratum, drained, 0 to 2% slopes NWI classification: PEM2/Seasonal

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?		✓
Hydric Soil Present?		✓
Wetland Hydrology Present?		✓

Is the Sampled Area within a Wetland? **Yes** ____ **No** ✓

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Herb Stratum (Plot size: 1m^2)			
1. *Elymus caput-medusae*	30	Y	UPL
2. *Avena barbata*	60	Y	UPL
3. *Festuca perennis*	5	N	FAC
4. *Hordeum marinum ssp. gussoneanum*	2	N	FAC
5. *Parentucellia viscosa*	1	N	FAC
= Total Cover			
Herb Stratum (Plot size: 1 m^2)			
1. *Trifolium pratense*	2	N	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	8	x 3 = 24
FACU species	2	x 4 = 8
UPL species	90	x 5 = 450
Column Totals:	100 (A)	482 (B)

Prevalence Index = B/A = 4.82

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ____ **No** ✓

Remarks:

SOIL

Sampling Point: 20-22

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-14	10 YR 2/2	100					clay loam	w/ minor gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: ______
Depth (inches): ______

Hydric Soil Present? Yes ______ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No ✓ Depth (inches): ______
Water Table Present? Yes ______ No ✓ Depth (inches): ______
Saturation Present? (includes capillary fringe) Yes ______ No ✓ Depth (inches): ______

Wetland Hydrology Present? Yes ______ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Anderson 53 City/County: Sonoma County Sampling Date: June 2, 2016

Applicant/Owner: University District, LLC State: CA Sampling Point: 21

Investigator(s): L. Stromberg, D. Wiemeyer, T. Winfield Section, Township, Range: ____

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): mixed Slope (%): <5%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.342442 Long: -122.666735 Datum: WSG84

Soil Map Unit Name: Clear Lake Clay, sandy substratum, drained, 0 to 2% slopes NWI classification: PEM2/Seasonal

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?	✓	
Hydric Soil Present?		✓
Wetland Hydrology Present?		✓

Is the Sampled Area within a Wetland? **Yes** ____ **No** ✓

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Herb Stratum (Plot size: 1m^2)			
1. *Festuca perennis*	80	Y	FAC
2. *Bromus hordeaceaus*	5	N	FACU
3. *Vicia sativa*	1	N	UPL
4. *Lathyrus latifolius*	1	N	UPL
5. *Briza minor*	2	N	FAC
= Total Cover			
Herb Stratum (Plot size: 1 m^2)			
1. *Elymus caput-medusae*	5	N	UPL
2. *Hordeum marinum ssp. gussoneanum*	1	N	FAC
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover	95		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	83	x 3 = 249
FACU species	5	x 4 = 20
UPL species	7	x 5 = 35
Column Totals:	95 (A)	304 (B)

Prevalence Index = B/A = 3.20

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

__ Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ____

Remarks:

SOIL

Sampling Point: 21

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	10 YR 2/2	96	7.5 YR 4/4	4	c	m	clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ______ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No ✓ Depth (inches): ______

Water Table Present? Yes ______ No ✓ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ______ No ✓ Depth (inches): ______

Wetland Hydrology Present? Yes ______ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Anderson 53 City/County: Sonoma County Sampling Date: June 2, 2016

Applicant/Owner: University District, LLC State: CA Sampling Point: 23

Investigator(s): L. Stromberg, D. Wiemeyer, T. Winfield Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): mixed Slope (%): <5%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.342442 Long: -122.666735 Datum: WSG84

Soil Map Unit Name: Clear Lake Clay, sandy substratum, drained, 0 to 2% slopes NWI classification: PEM2/Seasonal

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ___
Hydric Soil Present?	Yes ___	No ✓
Wetland Hydrology Present?	Yes ___	No ✓

Is the Sampled Area within a Wetland? **Yes** ___ **No** ✓

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
		= Total Cover	
Herb Stratum (Plot size: 1m^2)			
1. *Festuca perennis*	70	Y	FAC
2. *Rumex pulcher*	3	N	FAC
3. *Hordeum marinum gussoneum*	20	Y	FAC
4. *Avena barbata*	2	N	UPL
5. *Vicia sativa*	2	N	UPL
		= Total Cover	
Herb Stratum (Plot size: 1 m^2)			
1. *Elymus caput-medusae*	3	N	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	93	x 3 = 279
FACU species	0	x 4 = 0
UPL species	7	x 5 = 35
Column Totals:	100 (A)	314 (B)

Prevalence Index = B/A = 3.14

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

Remarks:

SOIL

Sampling Point: 23

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-7	10 YR 3/2	50	10YR3/3	50	c	m	grav-loam	faint mottles
7-14	10 YR 3/2	100					grav-loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______________

Depth (inches): ______________

Hydric Soil Present? Yes ______ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No ✓ Depth (inches): ______

Water Table Present? Yes ______ No ✓ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ______ No ✓ Depth (inches): ______

Wetland Hydrology Present? Yes ______ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Anderson 53 City/County: Sonoma County Sampling Date: June 2, 2016

Applicant/Owner: University District, LLC State: CA Sampling Point: 24

Investigator(s): L. Stromberg, D. Wiemeyer, T. Winfield Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): mixed Slope (%): <5%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.342442 Long: -122.666735 Datum: WSG84

Soil Map Unit Name: Clear Lake clay loam, 0 to 5 % slopes NWI classification: PEM2/Seasonal

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?		✓
Hydric Soil Present?		✓
Wetland Hydrology Present?		✓

Is the Sampled Area within a Wetland? Yes ____ No ✓

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Herb Stratum (Plot size: 1m^2)			
1. *Festuca perennis*	20	Y	FAC
2. *Avena barbata*	35	Y	UPL
3. *Hordeum marinum ssp. gussoneanum*	20	Y	FAC
4. *Festuca bromoides*	5	N	FAC
5. *Rumex pulcher*	3	N	FACW
= Total Cover			
Herb Stratum (Plot size: 1 m^2)			
1. *Elymus caput-medusae*	5	N	UPL
2. *Bromus hordeaceus*	20	Y	FACU
3. *Carduus pycnocephalus*	1	N	UPL
4. *Erodium cicutarium*	2	N	UPL
5.			
6.			
7.			
8.			
= Total Cover	111		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 3 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	3	x 2 =	6
FAC species	45	x 3 =	135
FACU species	20	x 4 =	80
UPL species	43	x 5 =	215
Column Totals:	111 (A)		436 (B)

Prevalence Index = B/A = 3.92

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:

SOIL

Sampling Point: 24

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10 YR 3/4	100					sandy clay	loam with cobbles

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ______ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No ✓ Depth (inches): ______

Water Table Present? Yes ______ No ✓ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ______ No ✓ Depth (inches): ______

Wetland Hydrology Present? Yes ______ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Anderson 53 City/County: Sonoma County Sampling Date: June 2, 2016

Applicant/Owner: University District, LLC State: CA Sampling Point: 25

Investigator(s): L. Stromberg, D. Wiemeyer, T. Winfield Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): mixed Slope (%): <5%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.342442 Long: -122.666735 Datum: WSG84

Soil Map Unit Name: Clear Lake Clay, sandy substratum, drained, 0 to 2% slopes NWI classification: PEM2/Seasonal

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?	✓	
Hydric Soil Present?		✓
Wetland Hydrology Present?		✓

Is the Sampled Area within a Wetland? Yes ____ No ✓

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Herb Stratum (Plot size: 1m^2)			
1. *Festuca perennis*	85	Y	FAC
2. *Rumex crispus*	5	N	FAC
3. *Hordeum marinum gussoneanum*	10	N	FAC
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 1 m^2)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	100	x 3 = 300
FACU species	0	x 4 = 0
UPL species	0	x 5 = 0
Column Totals:	100 (A)	300 (B)

Prevalence Index = B/A = 3.00

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

Sampling Point: 25

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10 YR 3/2	100					grav-loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ______ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No ✓ Depth (inches): ______
Water Table Present? Yes ______ No ✓ Depth (inches): ______
Saturation Present? (includes capillary fringe) Yes ______ No ✓ Depth (inches): ______

Wetland Hydrology Present? Yes ______ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Anderson 53 City/County: Sonoma County Sampling Date: June 2, 2016

Applicant/Owner: University District, LLC State: CA Sampling Point: 26

Investigator(s): L. Stromberg, D. Wiemeyer, T. Winfield Section, Township, Range: ____

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): mixed Slope (%): <5%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.342442 Long: -122.666735 Datum: WSG84

Soil Map Unit Name: Clear Lake Clay, sandy substratum, drained, 0 to 2% slopes NWI classification: PEM2/Seasonal

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No ✓
Hydric Soil Present?	Yes ____	No ✓
Wetland Hydrology Present?	Yes ____	No ✓

Is the Sampled Area within a Wetland? **Yes** ____ **No** ✓

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Herb Stratum (Plot size: 1m^2)			
1. *Avena barbata*	70	Y	UPL
2. *Bromus hordeaceus*	5	N	FACU
3. *Hordeum murinum*	5	N	FACU
4. *Centaurea solstitialis*	15	N	UPL
5. *Carthamus lanatus*	5	N	UPL
= Total Cover			
Herb Stratum (Plot size: 1 m^2)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	0	x 3 = 0
FACU species	10	x 4 = 40
UPL species	90	x 5 = 450
Column Totals:	100 (A)	490 (B)

Prevalence Index = B/A = 4.90

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ____ **No** ✓

Remarks:

SOIL

Sampling Point: 26

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10 YR 3/2	100					grav-loam	
8-16	10 YR 2/2	100					clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ______ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No ✓ Depth (inches): ______
Water Table Present? Yes ______ No ✓ Depth (inches): ______
Saturation Present? (includes capillary fringe) Yes ______ No ✓ Depth (inches): ______

Wetland Hydrology Present? Yes ______ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Anderson 53 City/County: Sonoma County Sampling Date: June 2, 2016

Applicant/Owner: University District, LLC State: CA Sampling Point: 28

Investigator(s): L. Stromberg, D. Wiemeyer, T. Winfield Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): mixed Slope (%): <5%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.342442 Long: -122.666735 Datum: WSG84

Soil Map Unit Name: Clear Lake Clay, sandy substratum, drained, 0 to 2% slopes NWI classification: PEM2/Seasonal

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?		✓
Hydric Soil Present?		✓
Wetland Hydrology Present?		✓

Is the Sampled Area within a Wetland? Yes ___ No ✓

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Herb Stratum (Plot size: 1m^2)			
1. *Avena barbata*	75	Y	UPL
2. *Bromus hordeaceus*	15	N	FACU
3. *Elymus caput-medusae*	5	N	UPL
4. *Carthamus lanatus*	5	N	UPL
5.			
= Total Cover			
Herb Stratum (Plot size: 1 m^2)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	0	x 3 = 0
FACU species	15	x 4 = 60
UPL species	85	x 5 = 425
Column Totals:	100 (A)	485 (B)

Prevalence Index = B/A = 4.85

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No ✓

Remarks:

SOIL

Sampling Point: 28

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-14	10 YR 2/2	50	10 YR 3/3	50			loam	mixed matrix; faint mottles

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ______ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No ✓ Depth (inches): ______

Water Table Present? Yes ______ No ✓ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ______ No ✓ Depth (inches): ______

Wetland Hydrology Present? Yes ______ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Anderson 53 City/County: Sonoma County Sampling Date: June 2, 2016

Applicant/Owner: University District, LLC State: CA Sampling Point: 29

Investigator(s): L. Stromberg, D. Wiemeyer, T. Winfield Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): mixed Slope (%): <5%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.342442 Long: -122.666735 Datum: WSG84

Soil Map Unit Name: Clear Lake clay loam, 2 to 5 % slopes NWI classification: PEM2/Seasonal

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ___
Hydric Soil Present?	Yes ✓	No ___
Wetland Hydrology Present?	Yes ✓	No ___

Is the Sampled Area within a Wetland? **Yes ✓ No ___**

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	___ = Total Cover		
Herb Stratum (Plot size: 1m^2)			
1. *Festuca perennis*	45	Y	FAC
2. *Rumex pulcher*	2	N	FAC
3. *Hordeum marinum ssp. gussoneanum*	20	Y	FAC
4. *Lythrum hyssopifolium*	1	N	OBL
5. *Festuca bromoides*	25	Y	FAC
	___ = Total Cover		
Herb Stratum (Plot size: 1 m^2)			
1. *Avena barbata*	5	N	UPL
2. *Pleuropogon californicus*	5	N	OBL
3. *Bromus hordeaceus*	5	N	FACU
4. *Carduus pycnocephalus*	2	N	UPL
5.			
6.			
7.			
8.			
	110 = Total Cover		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	___ = Total Cover		

% Bare Ground in Herb Stratum 2 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	6	x 1 =	6
FACW species	0	x 2 =	0
FAC species	92	x 3 =	276
FACU species	5	x 4 =	20
UPL species	7	x 5 =	35
Column Totals:	110 (A)		337 (B)

Prevalence Index = B/A = 3.06

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ✓ No ___**

Remarks:

SOIL

Sampling Point: 29

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-8	10 YR 3/3	70	10 YR 4/3	30	c	m	clay loam	faint mottles
8-12	10 YR 3/3	50	10 YR 4/3	30	c	m	clay loam	large cobbles; faint mottles
			10 YR 4/6	20	c	m	clay loam	large cobbles

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? **Yes** ✓ **No** ______

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No ✓ Depth (inches): ______

Water Table Present? Yes ______ No ✓ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ______ No ✓ Depth (inches): ______

Wetland Hydrology Present? **Yes** ✓ **No** ______

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Anderson 53 City/County: Sonoma County Sampling Date: June 2, 2016

Applicant/Owner: University District, LLC State: CA Sampling Point: 30

Investigator(s): L. Stromberg, D. Wiemeyer, T. Winfield Section, Township, Range: ____

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): mixed Slope (%): <5%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.342442 Long: -122.666735 Datum: WSG84

Soil Map Unit Name: Clear Lake clay loam, 0 to 5 % slopes NWI classification: PEM2/Seasonal

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No ✓
Hydric Soil Present?	Yes ____	No ✓
Wetland Hydrology Present?	Yes ____	No ✓

Is the Sampled Area within a Wetland? **Yes** ____ **No** ✓

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Herb Stratum (Plot size: 1m^2)			
1. *Festuca perennis*	15	N	FAC
2. *Avena barbata*	35	Y	UPL
3. *Hordeum marinum ssp. gussoneanum*	5	N	FAC
4. *Festuca bromoides*	15	N	FAC
5. *Rumex pulcher*	2	N	FACW
	____ = Total Cover		
Herb Stratum (Plot size: 1 m^2)			
1. *Elymus caput-medusae*	5	N	UPL
2. *Bromus hordeaceus*	25	Y	FACU
3. *Carduus pycnocephalus*	3	N	UPL
4.			
5.			
6.			
7.			
8.			
	105 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	2	x 2 = 4
FAC species	35	x 3 = 105
FACU species	25	x 4 = 100
UPL species	43	x 5 = 215
Column Totals:	105 (A)	424 (B)

Prevalence Index = B/A = 4.04

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ____ **No** ✓

Remarks:

SOIL

Sampling Point: 30

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10 YR 3/3	100					clay loam	
6-12	10 YR 3/3	60	10 YR 2/2	40	d	m	clay laom	faint mottles

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ________

Depth (inches): ________

Hydric Soil Present? Yes ____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): ____
Water Table Present? Yes ____ No ✓ Depth (inches): ____
Saturation Present? (includes capillary fringe) Yes ____ No ✓ Depth (inches): ____

Wetland Hydrology Present? Yes ____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Anderson 53 City/County: Sonoma County Sampling Date: June 2, 2016

Applicant/Owner: University District, LLC State: CA Sampling Point: 31

Investigator(s): L. Stromberg, D. Wiemeyer, T. Winfield Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): mixed Slope (%): <5%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.342442 Long: -122.666735 Datum: WSG84

Soil Map Unit Name: Clear Lake Clay, sandy substratum, drained, 0 to 2% slopes NWI classification: PEM2/Seasonal

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?		✓
Hydric Soil Present?		✓
Wetland Hydrology Present?		✓

Is the Sampled Area within a Wetland? **Yes** ____ **No** ✓

Remarks:

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
= Total Cover			
Herb Stratum (Plot size: 1m^2)			
1. *Avena barbata*	35	Y	UPL
2. *Bromus hordeaceus*	15	N	FACU
3. *Festuca perennis*	50	Y	FAC
4. *Carthamus lanatus*	1	N	UPL
5.			
= Total Cover			
Herb Stratum (Plot size: 1 m^2)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover	101		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	50	x 3 =	150
FACU species	15	x 4 =	60
UPL species	36	x 5 =	180
Column Totals:	101 (A)		390 (B)

Prevalence Index = B/A = 3.86

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ____ **No** ✓

Remarks:

SOIL

Sampling Point: 31

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-14	10 YR 2/2	50	10 YR 3/3	50			grav-loam	mixed matrix; faint mottles

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ______ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No ✓ Depth (inches): ______

Water Table Present? Yes ______ No ✓ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ______ No ✓ Depth (inches): ______

Wetland Hydrology Present? Yes ______ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Anderson 53 City/County: Sonoma County Sampling Date: June 2, 2016

Applicant/Owner: University District, LLC State: CA Sampling Point: 31E

Investigator(s): L. Stromberg, D. Wiemeyer, T. Winfield Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): mixed Slope (%): <5%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.342442 Long: -122.666735 Datum: WSG84

Soil Map Unit Name: Clear Lake Clay, sandy substratum, drained, 0 to 2% slopes NWI classification: PEM2/Seasonal

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___	No ✓
Hydric Soil Present?	Yes ___	No ✓
Wetland Hydrology Present?	Yes ___	No ✓

Is the Sampled Area within a Wetland? Yes ___ No ✓

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Herb Stratum (Plot size: 1m^2)			
1. *Avena barbata*	60	Y	UPL
2. *Bromus hordeaceus*	30	Y	FACU
3. *Festuca perennis*	5	N	FAC
4. *Convolvulus arvensis*	5	N	UPL
5.			
= Total Cover			
Herb Stratum (Plot size: 1 m^2)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	5	x 3 =	15
FACU species	30	x 4 =	120
UPL species	65	x 5 =	325
Column Totals:	100 (A)		460 (B)

Prevalence Index = B/A = 4.60

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No ✓

Remarks:

SOIL

Sampling Point: 31E

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-7	10 YR 3/2	100					loam	
7-14	10 YR 3/2	100					loam	w/ gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ______ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No ✓ Depth (inches): ______

Water Table Present? Yes ______ No ✓ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ______ No ✓ Depth (inches): ______

Wetland Hydrology Present? Yes ______ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Anderson 53 City/County: Sonoma County Sampling Date: June 2, 2016

Applicant/Owner: University District, LLC State: CA Sampling Point: 33

Investigator(s): L. Stromberg, D. Wiemeyer, T. Winfield Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): mixed Slope (%): <5%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.342442 Long: -122.666735 Datum: WSG84

Soil Map Unit Name: Clear Lake clay loam, 2 to 5 % slopes NWI classification: PEM2/Seasonal

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ___
Hydric Soil Present?	Yes ✓	No ___
Wetland Hydrology Present?	Yes ✓	No ___

Is the Sampled Area within a Wetland? **Yes** ✓ **No** ___

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Herb Stratum (Plot size: 1m^2)			
1. *Festuca perennis*	50	Y	FAC
2. *Glyceria occidentalis*	20	Y	OBL
3. *Eleocharis macrostachya*	30	Y	OBL
4. *Cyperus eragrostis*	2	N	FACW
5. *Polypogon monspeliensis*	5	N	FACW
= Total Cover			
Herb Stratum (Plot size: 1 m^2)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover	107		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 2 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	50	x 1 =	50
FACW species	7	x 2 =	14
FAC species	50	x 3 =	150
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	107 (A)		214 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

- ✓ Dominance Test is >50%
- ✓ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

Remarks:

SOIL

Sampling Point: 33

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	10 YR 4/3	45	10 YR 2/2	30	d	m	clay loam	cobbles; faint mottles
			10 YR 3/2	20	d	m	clay loam	cobbles; faint mottles
			10 YR 3/6	>5	c	m	clay loam	cobbles

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? **Yes** ✓ **No** ______

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✓ No ______ Depth (inches): 1

Water Table Present? Yes ______ No ✓ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes ✓ No ______ Depth (inches): 0

Wetland Hydrology Present? **Yes** ✓ **No** ______

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Anderson 53 City/County: Sonoma County Sampling Date: June 2, 2016

Applicant/Owner: University District, LLC State: CA Sampling Point: 34

Investigator(s): L. Stromberg, D. Wiemeyer, T. Winfield Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): mixed Slope (%): <5%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.342442 Long: -122.666735 Datum: WSG84

Soil Map Unit Name: Clear Lake clay loam, 2 to 5 % slopes NWI classification: PEM2/Seasonal

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___	No ✓
Hydric Soil Present?	Yes ___	No ✓
Wetland Hydrology Present?	Yes ___	No ✓

Is the Sampled Area within a Wetland? Yes ___ No ✓

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Herb Stratum (Plot size: 1m^2)			
1. *Avena barbata*	35	Y	UPL
2. *Hordeum murinum*	5	N	FACU
3. *Centaurea calcitrapa*	17	N	UPL
4. *Bromus hordeaceaus*	20	Y	FACU
5. *Convolvulus arvensis*	3	N	UPL
= Total Cover			
Herb Stratum (Plot size: 1 m^2)			
1. *Festuca perennis*	15	N	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover	95		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	15	x 3 = 45
FACU species	25	x 4 = 100
UPL species	55	x 5 = 275
Column Totals:	95 (A)	420 (B)

Prevalence Index = B/A = 4.42

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No ✓

Remarks:

SOIL

Sampling Point: 34

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-14	10 YR 3/2	100					clay loam	w/ gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ________

Depth (inches): ________

Hydric Soil Present? Yes ____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): 0
Water Table Present? Yes ____ No ✓ Depth (inches): 0
Saturation Present? (includes capillary fringe) Yes ____ No ✓ Depth (inches): 0

Wetland Hydrology Present? Yes ____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Anderson 53 City/County: Sonoma County Sampling Date: June 2, 2016

Applicant/Owner: University District, LLC State: CA Sampling Point: 35

Investigator(s): L. Stromberg, D. Wiemeyer, T. Winfield Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): mixed Slope (%): <5%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.342442 Long: -122.666735 Datum: WSG84

Soil Map Unit Name: Clear Lake clay loam, 2 to 5 % slopes NWI classification: PEM2/Seasonal

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ___
Hydric Soil Present?	Yes ✓	No ___
Wetland Hydrology Present?	Yes ✓	No ___

Is the Sampled Area within a Wetland? Yes ✓ No ___

Remarks:

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
= Total Cover			
Herb Stratum (Plot size: 1m^2)			
1. *Festuca perennis*	45	Y	FAC
2. *Convolvulus arvensis*	5	N	UPL
3. *Hordeum marinum ssp. gussoneanum*	30	Y	FAC
4. *Avena barbata*	5	N	UPL
5. *Polypogon monspeliensis*	10	N	FACW
= Total Cover			
Herb Stratum (Plot size: 1 m^2)			
1. *Rorippa curvisiliqua*	15	N	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover	110		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	15	x 1 = 15
FACW species	10	x 2 = 20
FAC species	75	x 3 = 225
FACU species	0	x 4 = 0
UPL species	10	x 5 = 50
Column Totals:	110 (A)	310 (B)

Prevalence Index = B/A = 2.82

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks:

SOIL

Sampling Point: 35

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	10 YR 4/3	45	10 YR 2/2	30	d	m	clay loam	cobbles
			10 YR 3/2	20	d	m	clay loam	cobbles; faint mottles
			10 YR 3/6	5	d	m	clay loam	cobbles

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? **Yes** ✓ **No** ______

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ✓	No ______	Depth (inches): 6
Water Table Present?	Yes ______	No ✓	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes ✓	No ______	Depth (inches): 0

Wetland Hydrology Present? **Yes** ✓ **No** ______

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Anderson 53 City/County: Sonoma County Sampling Date: June 2, 2016

Applicant/Owner: University District, LLC State: CA Sampling Point: 36

Investigator(s): L. Stromberg, D. Wiemeyer, T. Winfield Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): mixed Slope (%): <5%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.342442 Long: -122.666735 Datum: WSG84

Soil Map Unit Name: Clear Lake clay loam, 2 to 5 % slopes NWI classification: PEM2/Seasonal

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No ✓
Hydric Soil Present?	Yes ____	No ✓
Wetland Hydrology Present?	Yes ____	No ✓

Is the Sampled Area within a Wetland? **Yes** ____ **No** ✓

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Herb Stratum (Plot size: 1m^2)			
1. *Avena barbata*	35	Y	UPL
2. *Hordeum murinum*	10	N	FACU
3. *Carthamus lanatus*	3	N	UPL
4. *Carduus pycnocephalus*	20	Y	UPL
5. *Convolvulus arvensis*	2	N	UPL
= Total Cover			
Herb Stratum (Plot size: 1 m^2)			
1. *Festuca perennis*	20	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover	90		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	20	x 3 =	60
FACU species	10	x 4 =	40
UPL species	60	x 5 =	300
Column Totals:	90 (A)		400 (B)

Prevalence Index = B/A = 4.44

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ____ **No** ✓

Remarks:

SOIL

Sampling Point: 36

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	10 YR 2/2	100					clay loam	w/ gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ______ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No ✓ Depth (inches): 0
Water Table Present? Yes ______ No ✓ Depth (inches): 0
Saturation Present? (includes capillary fringe) Yes ______ No ✓ Depth (inches): 0

Wetland Hydrology Present? Yes ______ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Anderson 53 City/County: Sonoma County Sampling Date: June 2, 2016

Applicant/Owner: University District, LLC State: CA Sampling Point: 37

Investigator(s): L. Stromberg, D. Wiemeyer, T. Winfield Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): mixed Slope (%): <5%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.342442 Long: -122.666735 Datum: WSG84

Soil Map Unit Name: Clear Lake clay loam, 2 to 5 % slopes NWI classification: PEM2/Seasonal

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ____
Hydric Soil Present?	Yes ✓	No ____
Wetland Hydrology Present?	Yes ✓	No ____

Is the Sampled Area within a Wetland? Yes ✓ No ____

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Herb Stratum (Plot size: 1m^2)			
1. *Festuca perennis*	70	Y	FAC
2. *Rumex pulcher*	5	N	FAC
3. *Hordeum marinum ssp. gussoneanum*	25	Y	FAC
4. *Vicia sativa*	1	N	UPL
5. *Lythrum hyssopifolium*	2	N	OBL
= Total Cover			
Herb Stratum (Plot size: 1 m^2)			
1. *Rorippa curvisiliqua*	5	N	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover	108		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	7	x 1 = 7
FACW species	0	x 2 = 0
FAC species	100	x 3 = 300
FACU species	0	x 4 = 0
UPL species	1	x 5 = 5
Column Totals:	108 (A)	312 (B)

Prevalence Index = B/A = 2.89

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

Sampling Point: 37

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	10 YR 4/3	45	10 YR 2/2	30	d	m	clay loam	cobbles
			10 YR 3/2	20	d	m	clay loam	cobbles; faint mottles
			10 YR 3/6	5	c	m	clay loam	cobbles

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? **Yes** ✓ **No** ______

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No ✓ Depth (inches): 0

Water Table Present? Yes ______ No ✓ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes ✓ No ______ Depth (inches): 8

Wetland Hydrology Present? **Yes** ✓ **No** ______

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Anderson 53 City/County: Sonoma County Sampling Date: June 2, 2016

Applicant/Owner: University District, LLC State: CA Sampling Point: 38

Investigator(s): L. Stromberg, D. Wiemeyer, T. Winfield Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): mixed Slope (%): <5%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.342442 Long: -122.666735 Datum: WSG84

Soil Map Unit Name: Clear Lake clay loam, 2 to 5 % slopes NWI classification: PEM2/Seasonal

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No ✓
Hydric Soil Present?	Yes ____	No ✓
Wetland Hydrology Present?	Yes ____	No ✓

Is the Sampled Area within a Wetland? Yes ____ No ✓

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Herb Stratum (Plot size: 1m^2)			
1. *Avena barbata*	25	Y	UPL
2. *Elymus caput-medusae*	25	Y	UPL
3. *Carthamus lanatus*	5	N	UPL
4. *Medicago polymorpha*	2	N	UPL
5. *Convolvulus arvensis*	10	N	UPL
= Total Cover			
Herb Stratum (Plot size: 1 m^2)			
1. *Festuca perennis*	25	Y	FAC
2. *Erodium cicutarium*	3	N	UPL
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover	95		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	25	x 3 = 75
FACU species	0	x 4 = 0
UPL species	70	x 5 = 350
Column Totals:	95 (A)	425 (B)

Prevalence Index = B/A = 4.47

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:

SOIL

Sampling Point: 38

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-14	10 YR 2/2	100					loam	w/ gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ___ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): 0

Water Table Present? Yes ___ No ✓ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): 0

Wetland Hydrology Present? Yes ___ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Anderson 53 City/County: Sonoma County Sampling Date: June 2, 2016

Applicant/Owner: University District, LLC State: CA Sampling Point: 39

Investigator(s): L. Stromberg, D. Wiemeyer, T. Winfield Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): mixed Slope (%): <5%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.342442 Long: -122.666735 Datum: WSG84

Soil Map Unit Name: Clear Lake clay loam, 2 to 5 % slopes NWI classification: PEM2/Seasonal

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	Is the Sampled Area within a Wetland?	Yes ✓ No ____
Hydric Soil Present?	Yes ✓ No ____		
Wetland Hydrology Present?	Yes ✓ No ____		

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Herb Stratum (Plot size: 1m^2)			
1. *Festuca perennis*	75	Y	FAC
2. *Rumex pulcher*	10	N	FAC
3. *Rumex crispus*	1	N	FAC
4. *Briza minor*	2	N	FAC
5. *Polypogon monspeliensis*	1	N	FACW
= Total Cover			
Herb Stratum (Plot size: 1 m^2)			
1. *Parentucellia viscosa*	1	N	FAC
2. *Rorippa curvisiliqua*	20	Y	OBL
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover	110		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	20	x 1 = 20
FACW species	1	x 2 = 2
FAC species	89	x 3 = 267
FACU species	0	x 4 = 0
UPL species	0	x 5 = 0
Column Totals:	110 (A)	289 (B)

Prevalence Index = B/A = 2.63

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

✓ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

Sampling Point: 39

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	10 YR 2/2	85	10 YR 4/6	>5	d	m	clay loam	cobbles
			10 YR 3/3	10	d	m	clay loam	cobbles; faint mottles

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- [ ] Histosol (A1)
- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5) (**LRR C**)
- [ ] 1 cm Muck (A9) (**LRR D**)
- [ ] Depleted Below Dark Surface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Loamy Mucky Mineral (F1)
- [ ] Loamy Gleyed Matrix (F2)
- [ ] Depleted Matrix (F3)
- [x] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)
- [ ] Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- [ ] 1 cm Muck (A9) (**LRR C**)
- [ ] 2 cm Muck (A10) (**LRR B**)
- [ ] Reduced Vertic (F18)
- [ ] Red Parent Material (TF2)
- [ ] Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ____

Depth (inches): ____

Hydric Soil Present? Yes ✓ No ____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [x] Saturation (A3)
- [ ] Water Marks (B1) (**Nonriverine**)
- [ ] Sediment Deposits (B2) (**Nonriverine**)
- [ ] Drift Deposits (B3) (**Nonriverine**)
- [ ] Surface Soil Cracks (B6)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Salt Crust (B11)
- [ ] Biotic Crust (B12)
- [ ] Aquatic Invertebrates (B13)
- [ ] Hydrogen Sulfide Odor (C1)
- [x] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- [ ] Water Marks (B1) (**Riverine**)
- [ ] Sediment Deposits (B2) (**Riverine**)
- [ ] Drift Deposits (B3) (**Riverine**)
- [ ] Drainage Patterns (B10)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Shallow Aquitard (D3)
- [ ] FAC-Neutral Test (D5)

Field Observations:

	Yes	No	Depth (inches)
Surface Water Present?		✓	0
Water Table Present?	✓		0
Saturation Present? (includes capillary fringe)	✓		0

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Anderson 53 City/County: Sonoma County Sampling Date: June 2, 2016

Applicant/Owner: University District, LLC State: CA Sampling Point: 40

Investigator(s): L. Stromberg, D. Wiemeyer, T. Winfield Section, Township, Range: ____

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): mixed Slope (%): <5%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.342442 Long: -122.666735 Datum: WSG84

Soil Map Unit Name: Clear Lake clay loam, 2 to 5 % slopes NWI classification: PEM2/Seasonal

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?		✓
Hydric Soil Present?		✓
Wetland Hydrology Present?		✓
Is the Sampled Area within a Wetland?		✓

Remarks:

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
= Total Cover			
Herb Stratum (Plot size: 1m^2)			
1. *Avena barbata*	40	Y	UPL
2. *Hordeum murinum*	20	Y	FACU
3. *Elymus caput-medusae*	10	N	UPL
4. *Vicia sativa*	10	N	UPL
5. *Convolvulus arvensis*	5	N	UPL
= Total Cover			
Herb Stratum (Plot size: 1 m^2)			
1. *Bromus hordeaceaus*	5	N	FACU
2. *Carduus pycnocephalus*	5	N	UPL
3. *Medicago polymorpha*	5	N	UPL
4.			
5.			
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	25	x 4 =	100
UPL species	75	x 5 =	375
Column Totals:	100 (A)		475 (B)

Prevalence Index = B/A = 4.75

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:

SOIL

Sampling Point: 40

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-16	10 YR 2/2	100					clay loam	w/ gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): 0
Water Table Present? Yes ____ No ✓ Depth (inches): 0
Saturation Present? (includes capillary fringe) Yes ____ No ✓ Depth (inches): 0

Wetland Hydrology Present? Yes ____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Anderson 53 City/County: Sonoma County Sampling Date: June 23, 2016

Applicant/Owner: University District, LLC State: CA Sampling Point: 43

Investigator(s): L. Stromberg, D. Wiemeyer, T. Winfield Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): mixed Slope (%): <5%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.342442 Long: -122.666735 Datum: WSG84

Soil Map Unit Name: Clear Lake Clay, sandy substratum, drained, 0 to 2% slopes NWI classification: PEM2/Seasonal

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ______ (If no, explain in Remarks.)

Are Vegetation ______, Soil ______, or Hydrology ______ significantly disturbed? Are “Normal Circumstances” present? Yes ✓ No ______

Are Vegetation ______, Soil ______, or Hydrology ______ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ______	No ✓
Hydric Soil Present?	Yes ______	No ✓
Wetland Hydrology Present?	Yes ______	No ✓

Is the Sampled Area within a Wetland? **Yes** ______ **No** ✓

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
		= Total Cover	
Herb Stratum (Plot size: 1m^2)			
1. *Avena barbata*	30	Y	UPL
2. *Vicia sativa*	10	N	UPL
3. *Elymus caput-medusae*	20	Y	UPL
4. *Lathyrus latifolius*	4	N	UPL
5. *Festuca perennis*	30	Y	FAC
		= Total Cover	
Herb Stratum (Plot size: 1 m^2)			
1. *Lactuca serriola*	1	N	FACU
2. *Bromus diandrus*	5	N	UPL
3. *Helminthotheca echioides*	1	N	FACU
4. *Elymus triticoides*	1	N	FAC
5.			
6.			
7.			
8.			
	102	= Total Cover	
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	31	x 3 =	93
FACU species	2	x 4 =	8
UPL species	69	x 5 =	345
Column Totals:	102 (A)		446 (B)

Prevalence Index = B/A = 4.37

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ______ **No** ✓

Remarks:

SOIL

Sampling Point: 43

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10 YR 3/2	100					loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ____________

Depth (inches): ____________

Hydric Soil Present? Yes ______ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No ✓ Depth (inches): ______
Water Table Present? Yes ______ No ✓ Depth (inches): ______
Saturation Present? (includes capillary fringe) Yes ______ No ✓ Depth (inches): ______

Wetland Hydrology Present? Yes ______ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Anderson 53 City/County: Sonoma County Sampling Date: June 23, 2016

Applicant/Owner: University District, LLC State: CA Sampling Point: 44

Investigator(s): L. Stromberg, D. Wiemeyer, T. Winfield Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): mixed Slope (%): <5%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.342442 Long: -122.666735 Datum: WSG84

Soil Map Unit Name: Clear Lake Clay, sandy substratum, drained, 0 to 2% slopes NWI classification: PEM2/Seasonal

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No ✓	Is the Sampled Area within a Wetland? Yes ____ No ✓
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Herb Stratum (Plot size: 1m^2)			
1. *Avena barbata*	30	Y	UPL
2. *Helminthotheca echioides*	1	N	FACU
3. *Elymus caput-medusae*	20	Y	UPL
4. *Elymus triticoides*	10	N	FAC
5. *Festuca perennis*	30	Y	FAC
= Total Cover			
Herb Stratum (Plot size: 1 m^2)			
1. *Bromus hordeaceaus*	5	N	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover	96		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 4 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	40	x 3 =	120
FACU species	6	x 4 =	24
UPL species	50	x 5 =	250
Column Totals:	96 (A)		394 (B)

Prevalence Index = B/A = 4.10

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:

SOIL

Sampling Point: 44

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10 YR 3/2	100					clay loam	w/ gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ____________

Depth (inches): ____________

Hydric Soil Present? Yes ______ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No ✓ Depth (inches): ______

Water Table Present? Yes ______ No ✓ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ______ No ✓ Depth (inches): ______

Wetland Hydrology Present? Yes ______ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Anderson 53 City/County: Sonoma County Sampling Date: June 23, 2016

Applicant/Owner: University District, LLC State: CA Sampling Point: 45

Investigator(s): L. Stromberg, D. Wiemeyer, T. Winfield Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): mixed Slope (%): <5%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.342442 Long: -122.666735 Datum: WSG84

Soil Map Unit Name: Clear Lake Clay, sandy substratum, drained, 0 to 2% slopes NWI classification: PEM2/Seasonal

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No ✓
Hydric Soil Present?	Yes ____	No ✓
Wetland Hydrology Present?	Yes ____	No ✓

Is the Sampled Area within a Wetland? Yes ____ No ✓

Remarks:

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
= Total Cover			
Herb Stratum (Plot size: 1m^2)			
1. *Avena barbata*	3	N	UPL
2. *Epilobium brachycarpum*	2	N	UPL
3. *Phalaris aquatica*	40	Y	FACU
4. *Elymus triticoides*	40	Y	FAC
5. *Festuca perennis*	15	N	FAC
= Total Cover			
Herb Stratum (Plot size: 1 m^2)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	55	x 3 = 165
FACU species	40	x 4 = 160
UPL species	5	x 5 = 25
Column Totals:	100 (A)	350 (B)

Prevalence Index = B/A = 3.50

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:

SOIL

Sampling Point: 45

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10 YR 3/2	99	10 YR 4/6	1	c	m	loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ______ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No ✓ Depth (inches): ______

Water Table Present? Yes ______ No ✓ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ______ No ✓ Depth (inches): ______

Wetland Hydrology Present? Yes ______ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Anderson 53 City/County: Sonoma County Sampling Date: June 23, 2016

Applicant/Owner: University District, LLC State: CA Sampling Point: 46

Investigator(s): L. Stromberg, D. Wiemeyer, T. Winfield Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): mixed Slope (%): <5%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.342442 Long: -122.666735 Datum: WSG84

Soil Map Unit Name: Clear Lake Clay, sandy substratum, drained, 0 to 2% slopes NWI classification: PEM2/Seasonal

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___	No ✓
Hydric Soil Present?	Yes ___	No ✓
Wetland Hydrology Present?	Yes ___	No ✓

Is the Sampled Area within a Wetland? Yes ___ No ✓

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Herb Stratum (Plot size: 1m^2)			
1. *Avena barbata*	2	Y	UPL
2. *Hordeum marinum ssp. gussoneanum*	40	Y	FAC
3. *Elymus caput-medusae*	20	Y	UPL
4. *Epilobium brachycarpum*	1	N	UPL
5. *Festuca perennis*	30	Y	FAC
= Total Cover			
Herb Stratum (Plot size: 1 m^2)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover	93		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 7 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	70	x 3 = 210
FACU species	0	x 4 = 0
UPL species	23	x 5 = 115
Column Totals:	93 (A)	325 (B)

Prevalence Index = B/A = 3.49

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No ✓

Remarks:

SOIL

Sampling Point: 46

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10 YR 3/2	100					clay loam	w/ gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ______ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No ✓ Depth (inches): ______

Water Table Present? Yes ______ No ✓ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ______ No ✓ Depth (inches): ______

Wetland Hydrology Present? Yes ______ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Anderson 53 City/County: Sonoma County Sampling Date: June 23, 2016

Applicant/Owner: University District, LLC State: CA Sampling Point: 47

Investigator(s): L. Stromberg, D. Wiemeyer, T. Winfield Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): mixed Slope (%): <5%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.342442 Long: -122.666735 Datum: WSG84

Soil Map Unit Name: Clear Lake clay loam, 2 to 5 % slopes NWI classification: PEM2/Seasonal

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?		✓
Hydric Soil Present?	✓	
Wetland Hydrology Present?		✓

Is the Sampled Area within a Wetland? Yes ___ No ✓

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Herb Stratum (Plot size: 1m^2)			
1. *Phalaris aquatica*	70	Y	FACU
2. *Briza minor*	1	N	FAC
3. *Bromus hordeaceaus*	1	N	FACU
4. *Festuca perennis*	5	N	FAC
5. *Polypogon monspeliensis*	1	N	FACW
= Total Cover			
Herb Stratum (Plot size: 1 m^2)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover	78		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 22 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	1	x 2 = 2
FAC species	6	x 3 = 18
FACU species	71	x 4 = 284
UPL species	0	x 5 = 0
Column Totals:	78 (A)	304 (B)

Prevalence Index = B/A = 3.90

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ___ No ✓

Remarks:

SOIL

Sampling Point: 47

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10 YR 3/2	100					clay loam	
6-12	10 YR 4/2	96	7.5 YR 4/6	4	c	m	loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ___ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Anderson 53 City/County: Sonoma County Sampling Date: June 23, 2016

Applicant/Owner: University District, LLC State: CA Sampling Point: 48

Investigator(s): L. Stromberg, D. Wiemeyer, T. Winfield Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): mixed Slope (%): <5%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.342442 Long: -122.666735 Datum: WSG84

Soil Map Unit Name: Clear Lake clay loam, 2 to 5 % slopes NWI classification: PEM2/Seasonal

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ______ (If no, explain in Remarks.)

Are Vegetation ______, Soil ______, or Hydrology ______ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ______

Are Vegetation ______, Soil ______, or Hydrology ______ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?		✓
Hydric Soil Present?		✓
Wetland Hydrology Present?	✓	

Is the Sampled Area within a Wetland? **Yes** ______ **No** ✓

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Herb Stratum (Plot size: 1m^2)			
1. *Phalaris aquatica*	100	Y	FACU
2. *Vicia sativa*	1	N	UPL
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 1 m^2)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover	101		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	0	x 3 = 0
FACU species	100	x 4 = 400
UPL species	1	x 5 = 5
Column Totals:	101 (A)	405 (B)

Prevalence Index = B/A = 4.01

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ______ **No** ✓

Remarks:

SOIL

Sampling Point: 48

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10 YR 4/2	60	10 YR 3/2	40			clay loam	mixed matrix; faint mottles
8-12	10 YR 4/3	80	10 YR 3/3	20			clay loam	mixed matrix; faint mottles

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? **Yes** ___ **No** ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No ✓	Depth (inches): ___
Water Table Present?	Yes ___	No ✓	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No ✓	Depth (inches): ___

Wetland Hydrology Present? **Yes** ✓ **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Anderson 53 City/County: Sonoma County Sampling Date: June 23, 2016

Applicant/Owner: University District, LLC State: CA Sampling Point: 49

Investigator(s): L. Stromberg, D. Wiemeyer, T. Winfield Section, Township, Range: ____

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): mixed Slope (%): <5%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.342442 Long: -122.666735 Datum: WSG84

Soil Map Unit Name: Clear Lake clay loam, 2 to 5 % slopes NWI classification: PEM2/Seasonal

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	Is the Sampled Area within a Wetland?	Yes ____ No ✓
Hydric Soil Present?	Yes ____ No ✓		
Wetland Hydrology Present?	Yes ____ No ✓		

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Herb Stratum (Plot size: 1m^2)			
1. *Lythrum hyssopifolium*	20	Y	OBL
2. *Pleuropogon californicus*	10	N	OBL
3. *Polygonum aviculare*	5	N	FAC
4. *Festuca perennis*	30	Y	FAC
5. *Polypogon monspeliensis*	25	Y	FACW
= Total Cover			
Herb Stratum (Plot size: 1 m^2)			
1. *Hordeum marinum ssp. gussoneanum*	5	N	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover	95		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	30	x 1 = 30
FACW species	25	x 2 = 50
FAC species	40	x 3 = 120
FACU species	0	x 4 = 0
UPL species	0	x 5 = 0
Column Totals:	95 (A)	200 (B)

Prevalence Index = B/A = 2.15

Hydrophytic Vegetation Indicators:

- ✓ Dominance Test is >50%
- ✓ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

Sampling Point: 49

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	10 YR 2/2	100					clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ______ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No ✓ Depth (inches): ______

Water Table Present? Yes ______ No ✓ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ______ No ✓ Depth (inches): ______

Wetland Hydrology Present? Yes ______ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Anderson 53 City/County: Sonoma County Sampling Date: June 23, 2016

Applicant/Owner: University District, LLC State: CA Sampling Point: 50

Investigator(s): L. Stromberg, D. Wiemeyer, T. Winfield Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): mixed Slope (%): <5%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.342442 Long: -122.666735 Datum: WSG84

Soil Map Unit Name: Clear Lake clay loam, 2 to 5 % slopes NWI classification: PEM2/Seasonal

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?	✓	
Hydric Soil Present?		✓
Wetland Hydrology Present?		✓

Is the Sampled Area within a Wetland? Yes ____ No ✓

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Herb Stratum (Plot size: 1m^2)			
1. *Hordeum marinum ssp. gussoneanum*	5	N	FAC
2. *Rumex pulcher*	10	N	FAC
3. *Festuca perennis*	85	Y	FAC
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 1 m^2)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	100	x 3 = 300
FACU species	0	x 4 = 0
UPL species	0	x 5 = 0
Column Totals:	100 (A)	300 (B)

Prevalence Index = B/A = 3.00

Hydrophytic Vegetation Indicators:

- ✓ Dominance Test is >50%
- ✓ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

Sampling Point: 50

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10 YR 2/2	100					clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ___ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ______
Water Table Present? Yes ___ No ✓ Depth (inches): ______
Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ______

Wetland Hydrology Present? Yes ___ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Petaluma Hill Road City/County: Sonoma County Sampling Date: July 28, 2016

Applicant/Owner: University District, LLC State: CA Sampling Point: A

Investigator(s): T. Winfield Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): mixed Slope (%): <5%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.344868 Long: -122.666767 Datum: WSG84

Soil Map Unit Name: Clear Lake Clay, sandy substratum, drained, 0 to 2% slopes NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No ✓	Is the Sampled Area within a Wetland? Yes ____ No ✓
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks:

Site is located along the east side of Petaluma Hill Road. No define drainage along the base of the elevated roadway. Agricultural fields to the east are managed for hay crop.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ______)			
1.			
2.			
3.			
4.			
= Total Cover			
Herb Stratum (Plot size: 1m^2)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 1 m^2)			
1. *Helminthotheca echioides*	60	X	FAC
2. *Festuca perennis*	5		FAC
3. *Epilobium brachycarpum*	15		NI/UPL
4. *Phalaris aquatica*	20	X	FACU
5. *Vicia sativa*	t		FACU
6. *Festuca bromoides*	2		FACU
7. *Kickxia elatine*	t		UPL
8.			
= Total Cover	102		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	65	x 3 = 195
FACU species	22	x 4 = 88
UPL species	15	x 5 = 75
Column Totals:	102 (A)	358 (B)

Prevalence Index = B/A = 3.51

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:

SOIL

Sampling Point: A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR3/2	40					cloam	unmottled
	10YR3/3	60					cloam	unmottled

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ______ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No ______ Depth (inches): ______

Water Table Present? Yes ______ No ______ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ______ No ______ Depth (inches): ______

Wetland Hydrology Present? Yes ______ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Petaluma Hill Road City/County: Sonoma County Sampling Date: July 28, 2016

Applicant/Owner: University District, LLC State: CA Sampling Point: B

Investigator(s): T. Winfield Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): mixed Slope (%): <5%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.344868 Long: -122.666767 Datum: WSG84

Soil Map Unit Name: Clear Lake Clay, sandy substratum, drained, 0 to 2% slopes NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ______ (If no, explain in Remarks.)

Are Vegetation ______, Soil ______, or Hydrology ______ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ______

Are Vegetation ______, Soil ______, or Hydrology ______ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ______ No ✓	Is the Sampled Area within a Wetland?	Yes ______ No ✓
Hydric Soil Present?	Yes ______ No ✓		
Wetland Hydrology Present?	Yes ______ No ✓		

Remarks:

Site is located along the east side of Petaluma Hill Road. No define drainage along the base of the elevated roadway. Agricultural fields to the east are managed for hay crop.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Herb Stratum (Plot size: 1m^2)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 1 m^2)			
1. *Dipsacus sativus*	80	X	NI/UPL
2. *Phalaris aquatica*	10		FACU
3. *Hirschfeldia incana*	2		NI/UPL
4.			
5.			
6.			
7.			
8.			
= Total Cover	92		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	0	x 3 = 0
FACU species	10	x 4 = 40
UPL species	82	x 5 = 410
Column Totals:	92 (A)	450 (B)

Prevalence Index = B/A = 4.89

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ______ No ✓

Remarks:

SOIL

Sampling Point: B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR2/2	50					cloam	unmottled
	10YR3/2	50					cloam	unmottled

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ______ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ______ No ______ Depth (inches): ______

Water Table Present? Yes ______ No ______ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ______ No ______ Depth (inches): ______

Wetland Hydrology Present? Yes ______ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Petaluma Hill Road City/County: Sonoma County Sampling Date: July 28, 2016

Applicant/Owner: University District, LLC State: CA Sampling Point: C

Investigator(s): T. Winfield Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): mixed Slope (%): <5%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.344868 Long: -122.666767 Datum: WSG84

Soil Map Unit Name: Clear Lake Clay, sandy substratum, drained, 0 to 2% slopes NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?		✓
Hydric Soil Present?		✓
Wetland Hydrology Present?		✓

Is the Sampled Area within a Wetland? Yes ____ No ✓

Remarks:

Site is located along the east side of Petaluma Hill Road. No define drainage along the base of the elevated roadway. Agricultural fields to the east are managed for hay crop.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ______)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Herb Stratum (Plot size: 1m^2)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 1 m^2)			
1. *Festuca perennis*	60	X	FAC
2. *Phalaris aquatica*	35	X	FACU
3. *Bromus hordeaceus*	1		FACU
4.			
5.			
6.			
7.			
8.			
= Total Cover	96		
Woody Vine Stratum (Plot size: ______)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	60	x 3 = 180
FACU species	36	x 4 = 144
UPL species		x 5 = 0
Column Totals:	96 (A)	324 (B)

Prevalence Index = B/A = 3.78

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:

SOIL

Sampling Point: C

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR3/2	50					cloam	unmottled
	10YR3/3	50					cloam	unmottled

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ________

Depth (inches): ________

Hydric Soil Present? Yes ____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ____ Depth (inches): ____

Water Table Present? Yes ____ No ____ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No ____ Depth (inches): ____

Wetland Hydrology Present? Yes ____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Petaluma Hill Road City/County: Sonoma County Sampling Date: July 28, 2016

Applicant/Owner: University District, LLC State: CA Sampling Point: D

Investigator(s): T. Winfield Section, Township, Range: ______

Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): mixed Slope (%): <5%

Subregion (LRR): Mediterranean California (LRR C) Lat: 38.344868 Long: -122.666767 Datum: WSG84

Soil Map Unit Name: Clear Lake Clay, sandy substratum, drained, 0 to 2% slopes NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___	No ✓	**Is the Sampled Area within a Wetland?**	**Yes ___ No ✓**
Hydric Soil Present?	Yes ___	No ✓		
Wetland Hydrology Present?	Yes ___	No ✓		

Remarks:

Site is located along the east side of Petaluma Hill Road. No define drainage along the base of the elevated roadway. Agricultural fields to the east are managed for hay crop.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Herb Stratum (Plot size: 1m^2)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 1 m^2)			
1. *Dipsacus sativus*	60	X	UPL
2. *Phalaris aquatica*	30	X	FACU
3. *Foeniculum vulgare*	5		UPL
4.			
5.			
6.			
7.			
8.			
= Total Cover	95		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	50	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	30	x 4 =	120
UPL species	65	x 5 =	325
Column Totals:	95 (A)		445 (B)

Prevalence Index = B/A = 4.68

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ___ No ✓**

Remarks:

SOIL

Sampling Point: D

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR3/2	80					cloam	inclusions of rotten rock

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ___ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ___ Depth (inches): ___
Water Table Present? Yes ___ No ___ Depth (inches): ___
Saturation Present? (includes capillary fringe) Yes ___ No ___ Depth (inches): ___

Wetland Hydrology Present? Yes ___ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

APPENDIX D

Cultural Resources Inventory and Extended Phase I Report

CULTURAL RESOURCES INVENTORY AND EXTENDED PHASE I REPORT
for the
ROHNERT PARK WATER TANK PROJECT, SONOMA COUNTY, CALIFORNIA

Prepared for:

City of Rohnert Park
130 Avram Avenue
Rohnert Park, California 94928
Contact: Vanessa Marin, Senior Engineering Technician

Prepared by:

DUDEK
853 Lincoln Way, Suite 208
Auburn, California 95603
Adam Giacinto, MA, RPA,
William Burns, MSc, RPA
And
Angela Pham, MA, RPA

OCTOBER 2016

Printed on 30% post-consumer recycled material.

NATIONAL ARCHAEOLOGICAL DATABASE (NADB) INFORMATION

Authors: Adam Giacinto, MA, RPA, William Burns, MSc, RPA, and Angela Pham, MA, RPA

Firm: Dudek

Project Proponent: City of Rohnert Park

Report Date: October 2016

Report Title: Cultural Resources Inventory and Extended Phase I Report for the Rohnert Park Water Tank Project, Sonoma County, California

Type of Study: Archaeological Inventory, Pedestrian Survey, Extended Phase I

Resources: P-49-2600; P-49-3055; P-49-4917; RWT-BB-S-1; RWT-AG-I-1; RWT-AG-I-2; RWT-AG-I-3

USGS Quads: Cotati, California 1:24,000; T 6N, R 7W; Sections 19, 20, 29, 30

Acreage: 35,500 square feet (Water Tank Footprint)

Permit Numbers:

Keywords: Cotati USGS 7.5-Minute Quadrangle; Intensive Pedestrian Survey; Extended Phase I (XPI), P-49-2600; P-49-3055; P-49-4917; RWT-BB-S-1; RWT-AG-I-1; RWT-AG-I-2; RWT-AG-I-3

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MANAGEMENT SUMMARY

The Rohnert Park Water Tank Project (project) is located immediately east of Sonoma State University (SSU), Sonoma County, California. The project area intersects Public Land Survey System (PLSS) Sections 19, 20, 29, and 30 of Township 6 North, Range 7 West; and falls on the Cotati 7.5-minute USGS topographic quadrangle. The area of potential effects (APE) for the project includes both a section within the existing Petaluma Hill Road, and a portion of undeveloped pasture land extending approximately one-half mile to the east at this road's intersection with Copeland Creek. The vertical APE is anticipated to be related to the maximum depth of excavation for each planned component, ranging between 1 foot and 16 feet in depth. The APE is described in in detail within the technical report.

The City of Rohnert Park (City) plans to construct a water tank on the southwest slope of a hill, connected by a 12-foot-wide gravel and asphalt paved road to Petaluma Hill Road (a half-mile to the west); 12-inch water pipeline beneath the north-bound lane of Petaluma Hill Road and 16-inch pipeline beneath the newly planned water tank road; and, drainage improvements/piping at the base of the water tank site. The City is the lead agency responsible for compliance with the California Environmental Quality Act (CEQA). As the project will likely apply for a State Revolving Fund loan and requires a Section 404 Clean Water Act permit, effects to cultural resources pursuant to Section 106 of the National Historic Preservation Act (NHPA) will also be subject to review by the State Water Board and U.S. Army Corps of Engineers (ACOE).

Cultural resources inventory efforts for this project have included a Northwestern Information Center (NWIC) records search of the project APE and a half-mile surrounding radius, intensive-level pedestrian survey, and Extended Phase I survey of the APE. The records search did not identify cultural resources in the APE; however, three previously recorded historic-age resources have been identified near, but outside, of the project APE. A Native American Heritage Commission (NAHC) Sacred Lands File (SLF) search did not indicate the presence of any Native American cultural resources in or near the project area. Subsequent Native American outreach by letter and phone for the project was made with NAHC-listed Tribal representatives by the City. At this tribe's request, the City has provided the records search results to the Federated Indians Graton Rancheria. No additional requests for information or other correspondence has been received by the City from this tribe, or any other NAHC-listed contact. Tribal correspondence has not resulted in the identification of any tribal cultural resources within the APE.

Inventory efforts identified one prehistoric isolate within the planned APE. Isolates are not considered eligible for listing in the California Register of the Historical Resources (CRHR) or the National Register of Historic Places (NRHP). Two additional prehistoric isolates and one prehistoric archaeological site were identified within 100 feet, outside of, the APE. No known significant archaeological resources will be impacted by planned project activities. In consideration of the identified presence of archaeological resources in the vicinity, and the geomorphology of the surrounding soils, there is potential for the project to encounter yet-identified cultural material or deposits within pasturelands located east of Petaluma Hill Road. Based on these results, implementation of a cultural monitoring program is recommended within these portions of the APE. With this mitigation in place, no known or yet-identified archaeological resources will be impacted (No Historic Properties Affected) by the project as currently designed.

1 INTRODUCTION

1.1 Location

The Rohnert Park Water Tank Project (project) is located immediately east of Sonoma State University (SSU), Sonoma County, California (Figure 1). The project area, situated in the eastern outskirts of the City of Rohnert Park, includes both a portion of previously developed Petaluma Hill Road and undeveloped pastureland to the east. The project area intersects Public Land Survey System (PLSS) Sections 19, 20, 29, and 30 of Township 6 North, Range 7 West; and falls on the Cotati 7.5-minute USGS topographic quadrangle (Figure 2).

1.2 Project Description

The City of Rohnert Park is the lead agency responsible for compliance with the California Environmental Quality Act (CEQA). As the project will likely apply for a State Revolving Fund loan and is planned in the vicinity of wetlands, effects to cultural resources pursuant to Section 106 of the National Historic Preservation Act (NHPA) will also be subject to review by the State Water Board and U.S. Army Corps of Engineers (ACOE).

Planned project components include a water tank on the southwest slope of a hill, connected by a 12-foot-wide gravel and asphalt paved road to Petaluma Hill Road (a half-mile to the west); 12-inch water pipeline beneath Petaluma Hill Road and 16-inch pipeline beneath the newly planned road; and, drainage improvements/piping at the base of the water tank site. The area of potential effects (APE) for the project consists of the entire footprint for the proposed water tank and access road, as well as all temporary use areas including the construction yard (Figure 3). The vertical APE will be represented by the maximum depth of excavation; anticipated to be 16 feet below the surface for the water tank site, 5 feet in depth for the culvert, 1 foot in depth for the newly planned 12 foot wide road, and 5 feet below the surface (8 feet in width) for the pipelines and road improvements. The construction yard will be stripped of vegetation and compacted through drive and crush methods anticipated to be less than 1 foot in depth.

Prior to work, orange construction fencing will be installed along the environmentally sensitive wetland areas adjacent to construction as indicated on the project plans, and at the direction of the project biologist. In addition to the orange construction fencing, silt fencing and straw wattles will be installed along the uphill slope of the wetland area. The orange construction fencing will be removed upon the completion of construction, but the silt fencing and straw wattles will remain in place until vegetation has been re-established.

1.3 Report Structure and Key Personnel

This report is divided into seven chapters. Following this introduction, Chapter 2 reviews the natural environment and the cultural context and Chapter 3 provides the methods used to complete the current inventory. The records search, inventory, and Extended Phase I testing results are discussed in Chapter 4. Chapter 5 summarizes the cultural resources work completed for this project to date and provides recommendations for further treatment of the cultural resources, consistent with Section 106 of the NHPA. Chapter 6 provides a plan for cultural resources monitoring. References are provided for in Chapter 7. Several appendices are attached to this report. Appendix A includes confidential records search results and Department of Parks and Recreation (DPR) forms for newly recorded cultural resources; Appendix B contains tribal correspondence documents; Appendix C contains the previous archaeological report and geotechnical report for the current project; and Appendix D provides resumes of key personnel.

Adam Giacinto, MA, RPA, acted as principal investigator, oversaw field efforts, and authored the technical report. William Burns, MSC, RPA, and Angela Pham, MA, RPA assisted with preparation of this report. William Burns and Sarah Lewis completed the Extended Phase I testing. All archaeologists preparing this report meet the Secretary of the Interior Standards for archaeology and have extensive working within local, state, and federal regulatory contexts.

Kelseyville
Clearlake
Lower Lake
Cobb
Hidden Valley Lake
Colusa County
Yolo County
Mendocino County
Sonoma County
Sonoma County
Lake County
Lake County
Napa County
Napa County
Yolo County
Angwin
Deer Park
St. Helena
Windsor
Larkfield-Wikiup
Forestville
Santa Rosa
Occidental
South Santa Rosa
South Santa Rosa
Sonoma County
Napa County
Rohnert Park
Project Site
Bodega Bay
Napa
Napa County
Solano County
Fairfield
Petaluma
Sonoma County
Marin County
American Canyon
Novato
Vallejo
Benicia
Inverness
Rodeo
Lucas Valley-Marinwood
Lagunitas-Forest Knolls
Hercules
Pinole
Vine Hill
Martinez
Concord
Pleasant Hill
San Rafael
Richmond
Pacific Ocean
Mill Valley
Lafayette
Walnut Creek
Berkeley
Orinda
Alamo
Moraga Town
Oakland
Danville
Alameda
San Francisco
San Francisco County
San Mateo County
San Leandro
Castro Valley
Fairview
0 5 10 Miles
SOURCE: ESRI Basemaps
FIGURE 1
Regional Map
DUDEK
Water Tank Report
City of Rohnert Park

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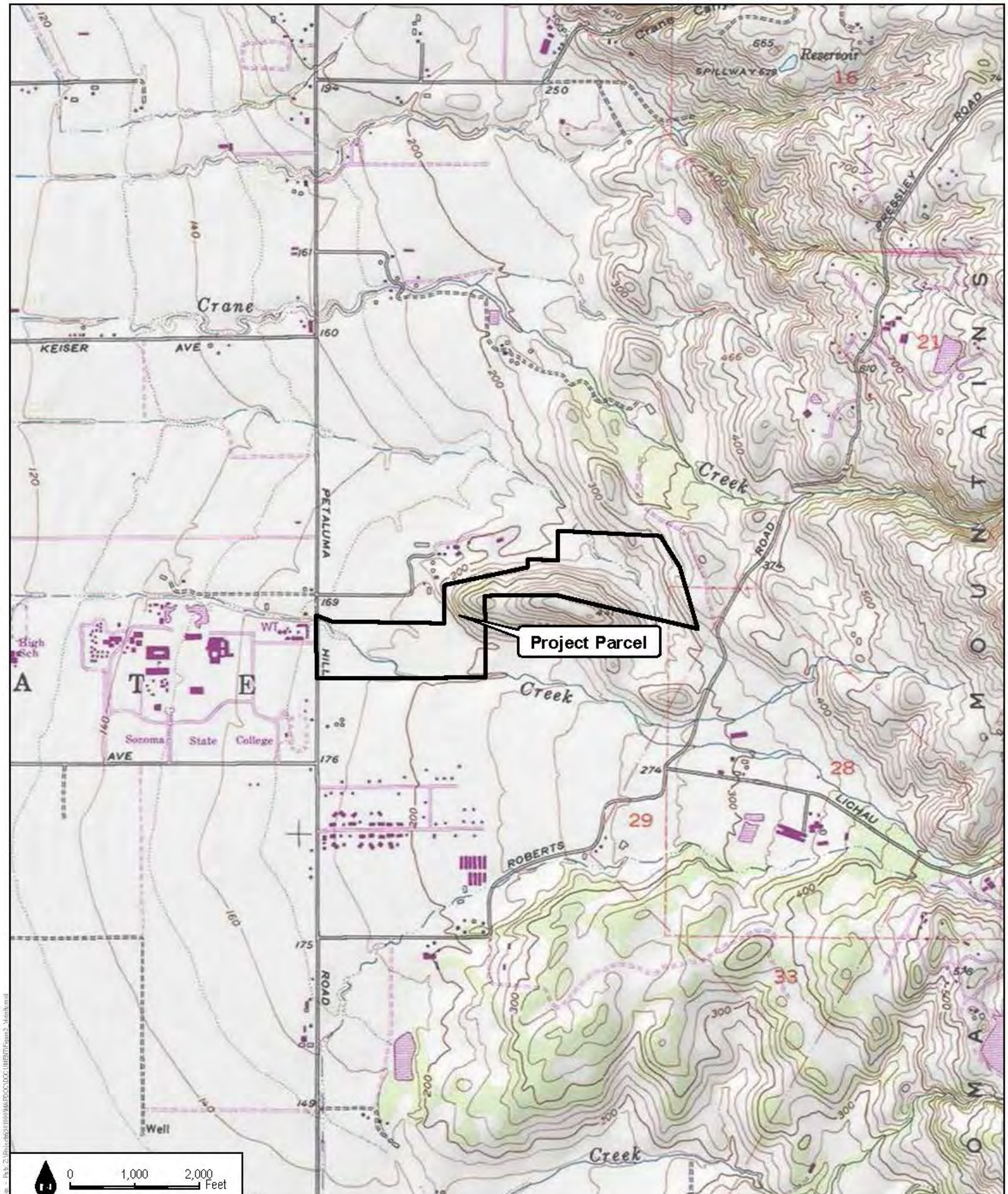

SOURCE: USGS 7.5-Minute Series Cotati Quadrangle; Sonoma County GIS (2016)

DUDEK

FIGURE 2
Vicinity Map

Water Tank Report

City of Rohnert Park

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SOURCE: Bing Maps (2016); NHD (2016); Brelje & Race Consulting (2016); City of Rohnert Park (2016)

DUDEK

Water Tank Report

FIGURE 3

Area of Potential Effects

City of Rohnert Park

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1.4 Regulatory Context

The current cultural resources investigation was completed to satisfy both CEQA and Section 106 of NHPA.

1.4.1 National Historic Preservation Act (NHPA)

The National Register of Historic Places (NRHP) is the United States' official list of districts, sites, buildings, structures, and objects worthy of preservation. Overseen by the National Park Service (NPS), under the U.S. Department of the Interior, the NRHP was authorized under the NHPA, as amended. Its listings encompass all National Historic Landmarks, as well as historic areas administered by NPS.

NRHP guidelines for the evaluation of historic significance were developed to be flexible and to recognize the accomplishments of all who have made significant contributions to the nation's history and heritage. Its criteria are designed to guide state and local governments, federal agencies, and others in evaluating potential entries in the NRHP. For a property to be listed in or determined eligible for listing, it must be demonstrated to possess integrity and to meet at least one of the following criteria:

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

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

B. That are associated with the lives of persons significant in our past; or

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

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

Integrity is defined in NRHP guidance, *How to Apply the National Register Criteria,* as "the ability of a property to convey its significance. To be listed in the NRHP, a property must not only be shown to be significant under the NRHP criteria, but it also must have integrity" (NPS 1990). NRHP guidance further asserts that properties be completed at least 50 years ago to be considered for eligibility. Properties completed fewer than 50 years before evaluation must be proven to be "exceptionally important" (criteria consideration G) to be considered for listing.

A historic property is defined as "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the NRHP maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the NRHP criteria" (36 CFR Sections 800.16(i)(1)).

Effects on historic properties under Section 106 of the NHPA are defined in the assessment of adverse effects in 36 CFR Sections 800.5(a)(1):

> An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the National Register. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative.

Adverse effects on historic properties are clearly defined and include, but are not limited to:

(i) Physical destruction of or damage to all or part of the property;

(ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation and provision of handicapped access, that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR Part 68) and applicable guidelines;

(iii) Removal of the property from its historic location;

(iv) Change of the character of the property's use or of physical features within the property's setting that contributes to its historic significance;

(v) Introduction of visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features;

(vi) Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and

(vii) Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance (36 CFR 800.5 (2)).

To comply with Section 106, the criteria of adverse effect are applied to historic properties, if any exist in the Project Area of Potential Effect (APE), pursuant to 36 CFR Sections 800.5(a)(1). If no historic properties are identified in the APE, a finding of "no historic properties affected" will be made for the proposed Project. If there are historic properties in the APE, application of the criteria of adverse effect will result in Project-related findings of either "no adverse effect" or of "adverse effect," as described above. A finding of no adverse effect may be appropriate when the undertaking's effects do not meet the thresholds in criteria of adverse effect 36 CFR Sections 800.5(a)(1), in certain cases when the undertaking is modified to avoid or lessen effects, or if conditions were imposed to ensure review of rehabilitation plans for conformance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (codified in 36 CFR Part 68).

If adverse effects findings were expected to result from the proposed Project, mitigation would be required, as feasible, and resolution of those adverse effects by consultation may occur to avoid, minimize, or mitigate adverse effects on historic properties pursuant to 36 CFR Part 800.6(a).

1.4.2 California Register of Historic Resources (CRHR) and CEQA

In California, the term "historical resource" includes but is not limited to "any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California." (PRC section 5020.1(j).) In 1992, the California legislature established the CRHR "to be used by state and local agencies, private groups, and citizens to identify the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change." (PRC section 5024.1(a).) The criteria for listing resources on the CRHR were expressly developed to be in accordance with previously established criteria developed for listing in the National Register of Historic Places (NRHP), enumerated below. According to PRC Section 5024.1(c)(1–4), a resource is considered historically significant if it (i) retains "substantial integrity," and (ii) meets at least one of the following criteria:

- Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
- Is associated with the lives of persons important in our past.
- 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.
- Has yielded, or may be likely to yield, information important in prehistory or history.

In order to understand the historic importance of a resource, sufficient time must have passed to obtain a scholarly perspective on the events or individuals associated with the resource. A resource less than fifty years old may be considered for listing in the CRHR if it can be demonstrated that sufficient time has passed to understand its historical importance (see Cal. Code Regs., tit. 14, section 4852(d)(2)).

The CRHR protects cultural resources by requiring evaluations of the significance of prehistoric and historic resources. The criteria for the CRHR are nearly identical to those for the NRHP and properties listed or formally designated as eligible for listing in the NRHP are automatically listed in the CRHR, as are the state landmarks and points of interest. The CRHR also includes properties designated under local ordinances or identified through local historical resource surveys.

California Environmental Quality Act

As described further below, the following CEQA statutes and CEQA Guidelines are of relevance to the analysis of archaeological, historic, and tribal cultural resources:

- PRC section 21083.2(g) defines “unique archaeological resource.”
- PRC section 21084.1 and CEQA Guidelines section 15064.5(a) defines “historical resources.” In addition, CEQA Guidelines section 15064.5(b) defines the phrase “substantial adverse change in the significance of an historical resource;” it also defines the circumstances when a project would materially impair the significance of an historical resource.

- PRC section 21074(a) defines “tribal cultural resources.”

- PRC section 5097.98 and CEQA Guidelines section 15064.5(e): Set forth standards and steps to be employed following the accidental discovery of human remains in any location other than a dedicated ceremony.

PRC sections 21083.2(b)-(c) and CEQA Guidelines section 15126.4: Provide information regarding the mitigation framework for archaeological and historic resources, including examples of preservation-in-place mitigation measures; preservation-in-place is the preferred manner of mitigating impacts to significant archaeological sites because it maintains the relationship between artifacts and the archaeological context, and may also help avoid conflict with religious or cultural values of groups associated with the archaeological site(s).

More specifically, under CEQA, a project may have a significant effect on the environment if it may cause "a substantial adverse change in the significance of an historical resource." (PRC section 21084.1; CEQA Guidelines section 15064.5(b).) If a site is either listed or eligible for listing in the CRHR, or if it is included in a local register of historic resources, or identified as significant in a historical resources survey (meeting the requirements of PRC section 5024.1(q)), it is a "historical resource" and is presumed to be historically or culturally significant for purposes of CEQA. (PRC section 21084.1; CEQA Guidelines section 15064.5(a).) The lead agency is not precluded from determining that a resource is a historical resource even if it does not fall within this presumption. (PRC section 21084.1; CEQA Guidelines section 15064.5(a).)

A "substantial adverse change in the significance of an historical resource" reflecting a significant effect under CEQA means "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired." (CEQA Guidelines section 15064.5(b)(1); PR Code section 5020.1(q).) In turn, the significance of an historical resource is materially impaired when a project:

- Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register; or
- Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the PRC or its identification in an historical resources survey meeting the requirements of section 5024.1(g) of the PRC, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or
- Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register as determined by a lead agency for purposes of CEQA.

(CEQA Guidelines section 15064.5(b)(2).) Pursuant to these sections, the CEQA inquiry begins with evaluating whether a project site contains any "historical resources," then evaluates whether that project will cause a substantial adverse change in the significance of a historical resource such that the resource's historical significance is materially impaired.

If it can be demonstrated that a project will cause damage to a unique archaeological resource, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that they cannot be left undisturbed, mitigation measures are required (Section 21083.2[a], [b], and [c]).

Section 21083.2(g) defines a unique archaeological resource as an archaeological artifact, object, or site about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

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

Impacts to non-unique archaeological resources are generally not considered a significant environmental impact (PRC section 21083.2(a); CEQA Guidelines section 15064.5(c)(4).) However, if a non-unique archaeological resource qualifies as tribal cultural resource (PRC 21074(c); 21083.2(h)), further consideration of significant impacts is required.

CEQA Guidelines section 15064.5 assigns special importance to human remains and specifies procedures to be used when Native American remains are discovered. As described below, these procedures are detailed in PRC section 5097.98.

California Health and Safety Code

California law protects Native American burials, skeletal remains, and associated grave goods, regardless of their antiquity, and provides for the sensitive treatment and disposition of those remains. Health and Safety Code section 7050.5 requires that if human remains are discovered in any place other than a dedicated cemetery, no further disturbance or excavation of the site or nearby area reasonably suspected to contain human remains shall occur until the County coroner has examined the remains (section 7050.5b). PRC Section 5097.98 also outlines the process to be followed in the event that remains are discovered. If the coroner determines or has reason to believe the remains are those of a Native American, the coroner must contact the California Native American Heritage Commission (NAHC) within 24 hours (section 7050.5c). The NAHC will notify the Most Likely Descendant. With the permission of the landowner, the Most Likely Descendant may inspect the site of discovery. The inspection must be completed within 48 hours of notification of the Most Likely Descendant by the NAHC. The Most Likely Descendant may recommend means of treating or disposing of, with appropriate dignity, the human remains and items associated with Native Americans.

2 PROJECT CONTEXT

2.1 Environmental Context

The Project is located principally within open agricultural land, east of the City of Rohnert Park and north of the Penngrove. Tamales Bay is 17 miles to the southwest and San Pablo Bay situated 19 miles to the southeast. Local vegetation consists primarily of low-laying meadow environment plants and grasses, with some scattered oak woodland and riparian community trees and shrubs along the drainages. The gradual slope throughout most of this area (less than 5 degrees) and proximity of Copeland Creek and smaller drainages, results in the regular seasonal inundation of much of this area. The water tank is situated on the southwestern slope of a low hill with a number of extruding volcanic outcrops, generally representing the western extent of the Sonoma Mountain volcanic formation. A number of volcanic lithic materials were readily available in these mountains for use in tool manufacture by Native Americans, perhaps most notably being the obsidian source located in Annabel State Park (4.5 miles to the northeast). The high level of surrounding topographic variability lends to the biodiversity of the area, this has traditionally provided for a broad range of flora and fauna that could be utilized by local Miwok and Pomo populations.

2.2 Cultural Context

Prehistoric Context

Numerous chronological sequences have been devised to aid in understanding cultural changes in the Region. Building on early studies and focusing on data synthesis, Fredrickson (1974, 1994) developed a prehistoric chronology for human history in this region that used sociopolitical complexity, trade networks, population, and the introduction and variation of artifact types to differentiate between cultural groups. Three periods are presented in Fredrickson's prehistoric sequence: Paleoindian, Archaic (consisting of Lower, Middle, and Upper), and Emergent. Following four decades, Fredrickson's synthesis is still widely used today as the dominant framework for northwest California researchers.

Paleoindian Period (ca. 10,000–6,000 BC)

Fredrickson's Paleoindian period marked the initial human migration into California with most known sites found on the edge of former lakeshores and waterways. Groups were small and highly mobile, occupying broad geographic areas. The vast array of research conducted on Paleoindian sites relies heavily on data collected from the Great Basin or Southern California region. Although Paleoindian sites exist in northwest California, a lack of well-defined Paleoindian assemblages associated with these sites prohibits the full understanding of the adaptive system of these early peoples. In northwest California, the Borax Lake site (LAK-36) near Clear Lake basin is the best illustration of the Paleoindian period, with fluted projectile points and chipped stone crescents. A site near Clear Lake (LAK-510) and another at Cache Creek (LAK-1581) have early dates associated with obsidian hydration, but they lack diagnostic items with strong associations to well-dated strata. Evidence of milling technology and associations with faunal remains is unknown (Hildebrandt 2007).

Archaic Period (6000 BC–AD 1000)

Fredrickson's Archaic period was characterized by three subdivisions based on developmental trends in subsistence strategies, settlement, technology, and social organization (Chartkoff 1998). The subdivisions defined a Lower (6000–3500 BC), Middle (3500–500 BC), and Upper (500 BC–AD 1000) Archaic sequence. A more diverse range of resources for groups to exploit proliferated during the Archaic period's substantial climate change to warmer and drier conditions. The diversification of the food base required more complex geographic mobility and expansion into surrounding environments, and the settlement strategies increased correspondingly. Archaic period social organization consisted of small-scale, semi-nomadic, socially egalitarian societies shifting from a foraging to a collecting way of life (Chartkoff 1998). Archaic cultures retained the use of large projectile points, but acorn and seed processing technology, consisting of the milling slab and handstone, was developed; this was eventually replaced by the bowl mortar and pestle. Trade systems and sustained exchanges between groups grew from the new diffuse economies. Shell beads gained significance as trade items.

Emergent Period (AD 1000–1800)

In the Emergent period (Fredrickson 1974, 1994), which lasted from the end of the Upper Archaic (ca. AD 1000) until European contact, there was an increase in the use of plant food resources in addition to an increase in terrestrial and fish game. There was a concurrent increase in the diversity and complexity of material culture during the Emergent period, as demonstrated by more classes of artifacts. The recovery of a greater number of small, finely chipped projectile points, often stemless with convex or concave bases, suggests an increased usage of the bow and arrow rather than the atlatl (spear throwing technology) and dart for hunting. Other items included the increased presence of smaller bone and Olivella beads, perforated stones, a variety of bone tools, and personal ornaments made from shell, bone, and stone. Many Emergent sites contain are highly formal and unnecessarily decorative. These items include the flanged pipe, the Olivella callus cup bead, and the banjo effigy ornament (Bennyhoff 1994). Mortuary customs were elaborate and include interment with abundant grave goods and cremation replacing the loosely flexed burial (Milliken et al. 2007).

During this period, there was an increase in population size accompanied by the advent of larger, more permanent villages (Wallace 1955). Larger populations and higher population densities are characteristic. Many of the larger settlements were permanent villages in which people resided year-round. The populations of these villages may have also increased seasonally (Milliken et al. 2007).

Ethnographic Context

Coast Miwok

The project area is in an area historically occupied by the Coast Miwok (Milliken 2009). The Coast Miwok territory was centered in Marin County and parts of Sonoma County (extending northward approximately to present day Sebastopol), from Duncan's Point on the coast eastward to between the Sonoma and Napa Rivers. Ethnographers infer that accounts from two sixteenth-century voyages, Drake in 1579 and Sebastian Rodriquez Cermeño in 1595, were the first European contacts with what was contemporary Coast Miwok culture (Kroeber 1925). It wasn't until the latter part of the eighteenth century, with the founding of the mission at San Francisco in 1776, and later, the missions at San Rafael (1817) and Solano-Sonoma (1823), that Europeans colonized Coast Miwok territory with forced evangelization (Kelly 1978).

The following ethnographic information is summarized from Coast Miwok (Kelly 1978), which was prepare by Isabel Kelly, ethnographer, and published in the Handbook of the North American Indians. The chapter presents the information gathered from interviews with twentieth century Coast Miwok consultants Tom Smith and Maria Copa and identified the culture, sociopolitical organization, and religion of the post-contact Coast Miwok.

Miwok was one of the California Penutian languages (Kroeber 1925). Coast Miwok had a considerable territory, though it has been suggested that the population may have been relatively small, totaling 2,000 individuals (Kroeber 1925). Coast Miwok terrain was diverse with marshlands, valleys, forests, and coast all contributing to an environmental setting well suited to an economy based on fishing, hunting, and gathering. Villages were predominantly found adjacent to shores; however, summers were spent hunting and gathering in the hills. Food sources were seasonal; during times of shortage in winter and spring, dried acorns, seeds, and kelp were the mainstay; in other months, salmon, mudhens, geese, fish, deer, crab, and other small and large mammals and marine animals were available. Men indulged in tobacco, and datura was also consumed. Basketry techniques included both coiled and twined forms, often with the use of multicolored motifs and patterns. Coast Miwok had grass-covered conical dwellings that contained a central hearth and accommodated 6 to 10 persons. Large villages had sizable semi-subterranean circular sweathouses and, if the population size warranted, a dance house. There was no overall tribal organization; each Coast Miwok village had a chief and two female leaders. Clamshell disk beads were used as currency to trade with Wappo country, South Pomo territory, Santa Rosa, and Healdsburg. Song, dance, ritual, and prayer were evident in everyday life. Song and dance were used for curing illness, spreading good fortune, teaching, and recreation.

The contact-period (ca. AD 1783–1840) regional communities, or tribes, were mapped by Milliken (2009) to discern the ethnogeography of the Coast Miwok. The project area falls within the *Geluayomi-Oleyomi* village area. Milliken provides the following pertinent section relating to mission-period Coast Miwok inhabitants of this area:

> The first large groups of Bloomfield/Cotati region people (Tamalsimela, Licatiut, Oleyomi, Geluayomi) were baptized. By years end, 1821, 93% of the Coast Miwok neophytes had been baptized. Only two Coast Miwok regions had significant numbers of people still living in tribal villages, Bodega Bay and Bloomfield/Cotati. The year 1822 was one of endings and beginnings in mission outreach. Bodega Bay and Bloomfield/Cotati were the only populated Coast Miwok regions at the beginning of the year. By year's end, 96% of the Coast Miwok neophytes had been baptized. Of 68 Coast Miwoks baptized in 1822, 65 were listed before the end of June. They came from all regions in the northern part of Coast Miwok territory, and included 35 Licatiuts and Tamalsimelas from the Bloomfield/Cotati region. The year 1824 saw the last cluster of Bloomfield/Cotati region Coast Miwok people baptized, 18 people at San Rafael and another 11 at newly opened Mission San Francisco Solano.
>
> The populations of the four communities of the Bloomfield/Cotati region were each less than 60, with Licatiut the largest at 56. This suggests that each of the four communities was a village group or mobile band. Barrett documented four village locations within the Bloomfield/Cotati region: Ulíyomi, about four miles west of Cotati; Payinétca, about 3.5 miles west-southwest of Cotati, Kotáti just north of Cotati; and Lumentákala in the hills on the northwest slope of Sonoma Mountain. I tentatively place the Geluayomis in the Bloomfield vicinity because of their marriage ties to North Tomales Bay, Bodega Bay, Lupuyomi Pomos and

> Livantolomi Pomos. Oleyome was probably Barrett's Ulíyome, west of Cotati. The Licatiuts, who had numerous Santa Rosa Plains Pomo links as well as Petaluma links, were probably originally associated with the remembered village of Kotati. Tamalsimila links were with Petaluma and Olompali, suggesting that they held the small valleys southwest of Penngrove. [Millikin 2009]

Missionization had detrimental effects on well-established cultural network of Coast Miwok communities throughout the region. By the time of California's initial integration into the United States in the 1840s, the Coast Miwok population was reportedly reduced from approximately 2,000 individuals to one-eighth of its size before European contact (Kelly 1978). Coast Miwok individuals entered both urban centers and throughout the region, often employed locally as farmhands. In 1920 the Bureau of Indian Affairs bought a 15-acre tract near Graton, providing the tribal reservation for the Miwok and neighboring groups now listed by the NAHC as the Federated Indians of Graton Rancheria.

The Historic Period

Spanish Period (1769–1822)

Spanish missionization of Alta California was initiated in San Diego (1769). A total of 21 missions were constructed by the Dominican and Franciscan orders between 1769 and 1823. Missions in the region included San Francisco de Asís (1776), Santa Clara de Asís (1776), San José de Guadalupe (1797 in Alameda County), San Rafael Arcángel (1817 in Marin County), and San Francisco Solano (1823 in Sonoma County; Grunsky 1989).

Mexican Period (1822–1848)

The current project areas lie in the Mexican-era land grant of Rancho Cotati, one of several tracts of land granted to Captain Juan Castaneda by the Mexican Governor Micheltorena. The original ranch was recognized as 17,238.6 acres. Captain Castaneda did not fulfill the required conditions necessary to own and maintain the Rancho Cotati land grant and it was soon lost. Mexico's separation from the Spanish empire in 1821 and the secularization of the California missions in the 1830s caused further disruptions to native populations. Following the establishment of the Mexican republic, the government seized many of the lands belonging to Native Americans, providing them as parts of larger Land Grants to affluent Mexican citizens and rancheros. The 1833 Secularization Act passed by the Mexican Congress ordered half of all mission lands to be transferred to Native Americans, and the other half to remain in trust and managed by an appointed administrator. These orders were never implemented due to several factors that conspired to prevent Native Americans from regaining their patrimony.

American Period (Post 1848)

California was officially ceded to the United States in 1848, which led to the continued appropriation of Native American Lands by ranchers, prospectors, and an increasing number of settlers. The United States Government did little to dissuade these trespasses. From 1850, with the passage of California's Indian Act, until legislative reforms in the late 1880s, state laws promoted conditions that amounted to indentured servitude for much of the Native American population throughout California. Thomas S. Page came to California in 1847 and served as Sheriff for the District of Sonoma in 1847 and 1848. Looking for a large tract of land, he applied to purchase the idle Cotati land grant. Page officially acquired the land in 1854 (Toumey 1926). Soon after he began to sell off portions of the land to newly arriving settlers and squatters who had already taken up residence building homes and planting crops, thinking that the land was still owned by the Mexican government (LeBaron et al.1985). Page died in 1872 and the remaining lands were left to his family, through the San Francisco based Cotati Company. The Atlas of Sonoma County (Reynolds and Proctor 1897) indicates the project area still belonged to the Cotati Company in 1897. Jo Markwyn's research within the project area revealed that by 1890 the land was being used for the raising of hops (Markwyn 1999). The property immediately north of the project site is known as Himebauch Ranch. The ranch was initially established in the 1860s, and the present ranch house itself dates to 1912. The property has remained in the same property since it was first settled.

2.3 Geomorphology

ENGEO, Inc. completed a geotechnical investigation of the project area in April 2005, per request of UD LLC (ENGEO 2005). ENGEO reviewed geological maps, performed a surface reconnaissance and a shallow subsurface geotechnical investigation at the project site, collected soil samples for testing, and performed engineering calculations to provide construction recommendations. The subsurface geotechnical investigations consisted of two geotechnical borings within the water tank site. The details of this report are summarized below.

The project area is located within the Coast Ranges Geomorphic Province of California. This region is characterized by part of the San Andreas Fault system, the boundary of the North American and Pacific tectonic plates. Motion between the two plates is generally a right-lateral strike slip with the Pacific Plate moving northwestward in relation to the North American Plate. Two borings were completed in the project area by ENGEO in on March 10 and 11 2005. The surface soils within the water tank site were observed to consist of 2 feet of clayey silt underlain by tuff beds transitioning to Tertiary igneous bedrock consisting of andesitic to basaltic lava flows. The surface soils leading west of the water tank site to Petaluma Hill Road were observed to consist Clear Lake clay loam, a poorly drained alluvium derived from sedimentary rock parent material and most common on 0-5 degree slopes. These areas are subject to seasonal flooding by Copeland Creek, resulting in the regular deposition of additional alluvial sediments on the surface.

Geological maps identify the eastern portion of the project area as Tertiary andesitic to basaltic lava flows; fan-shaped Quaternary deposits of fine sand and silt with more abundant gravel at the fan heads in the central portion project area; and, fine sand, silt and clay fluvial deposits in the western portion of the project near Petaluma Hill Road. Such depositional patterns, are characteristic of Holocene-era alluvial fans formed from the transport of sediments from upland slopes and drainages. Similar alluvial fan formations have been documented to contain Holocene to historic-era (11,800 to 150 years) archaeological deposits. Two such sites located in the Santa Rosa area (SON-1384 and SON-2098) yielded calibrated dates from subsurface deposits between 5588-3755 years before present (CAL BP) (Meyer and Rosenthal 2007). The presence of this formation, likely buried below more recent sediments associated with seasonal inundation from Copeland Creek, indicates that native sediments between Petaluma Hill Road and the water tank site do have the potential to contain archaeological deposits.

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3 RESEARCH METHODS

The Secretary of the Interior has issued Standards and Guidelines for Archeology and Historic Preservation (48 FR 44720–44726)), which are used for the identification and evaluation of historic properties and to ensure that the procedures are adequate and appropriate. The identification and evaluation of historic properties are dependent upon the relationship of individual properties to other similar properties (NPS and ACHP 1998, pp. 18–20). Information about properties regarding their prehistory, history, architecture, and other aspects of culture must be collected and organized to define these relationships (NPS 2009), which is the intent of the current inventory.

Pedestrian Survey

Following Bureau of Land Management (BLM) precedents, which are appropriate for cultural resources projects in general, survey techniques are loosely grouped into two categories: reconnaissance and intensive (BLM 2004; NPS 2009). The choice of survey category depends on the level of effort required for a particular project, which can vary depending on the nature of the properties or property types, the possible adverse effects on such properties, and agency requirements (NPS and ACHP 1998). The selection of field survey techniques and level of effort must be responsive to the management needs and preservation goals that direct the survey effort. For any survey, it is important to consider the full range of historic properties that may be affected, either directly or indirectly, and consider strategies that will minimize any adverse effects and maximize beneficial effects on those properties (BLM 2004; NPS 2009; NPS and ACHP 1998).

The current survey methods (completed August 20, 2016) can be classified as intensive since short-interval transect spacing and full documentation of cultural resources was completed. Survey staff exceeded the applicable Secretary of Interior Professional Qualifications Standards for archaeological survey. Dudek archaeologist Adam Giacinto surveyed the entire APE with transects spaced no more than 15 meters apart and oriented along the project alignment. Survey crew was equipped with a Global Positioning System (GPS) receiver with sub-meter accuracy. Location-specific photographs were taken using an Apple 3rd Generation IPAD equipped with 8 MP resolution and georeferenced PDF maps of the project area. Accuracy of this device ranged between 3 meters and 10 meters.

The surface of this area was observed to be highly obscured by low-laying grasses on this initial site visit (see Figures 4-6). Evidence for buried cultural deposits was opportunistically sought through inspection of natural or artificial erosion/excavation exposures and the spoils from rodent burrows. Mr. Giacinto walked along Copeland Creek to inspect exposed banks, within which a number of large pieces of concrete were observed indicating previous channelization. A number of open trenches (more than two-dozen inspected) relating to previous wetland delineation efforts were left open along a small drainage just south of the APE; between the water tank site and Petaluma Hill Road. These exposures, generally approximately 1-3 feet in depth, as well as removed soils, were thoroughly inspected for cultural resources. Field recording and photo documentation of resources, as appropriate, was completed.

The project APE has been subject to a number of past disturbances. The most notable of these have resulted from construction of Petaluma Hill Road. Given the high clay content of the surrounding soils, it is evident that cut and fill required for road compaction would have extended will below the proposed project component in this area. The areas east of this road have been subject to lesser disturbances that were noted to have included vegetation restoration, limited creek channelization and drainage improvements, and general use for agricultural purposes.

Extended Phase I

In order to account for low ground surface visibility during pedestrian survey, two archaeologists returned to the site to implement an Extended Phase I survey and exploratory probing program on August 30, 2016. During this visit, archaeologists completed close-interval survey and hand-raked away grasses in 5 meter intervals (for a distance of 30 meters) surrounding all identified cultural resources.

A total of 8 shovel test pits (STPs) were placed in areas near where cultural resources had been identified on the surface with the intent of identifying the presence/absence of cultural material within, or near, the proposed water tank and associated linear components. One STP contained subsurface cultural material (within RWT-BB-S-1), however was not within the project footprint. All other STPs were negative.

Documentation of cultural resources complied with the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (48 FR 44716-44740), and the California Office of Historic Preservation Planning Bulletin Number 4(a), December 1989, Archaeological Resource Management Reports (ARMR): Recommended Contents and Format (ARMR Guidelines) for the Preparation and Review of Archaeological Reports. All cultural resources identified during this inventory were recorded on California Department of Parks and Recreation Form DPR 523 (Series 1/95), using the Instructions for Recording Historical Resources (Office of Historic Preservation 1995), including updates to previously recorded resources.

Figure 4. Project overview photo, view north along Petaluma Hill Road

Figure 5. Project area overview photo, view east from Petaluma Hill Road

Figure 6. Project area overview photo, view west from water tank site

4 RESULTS

This section presents the results of the records search and the field survey of the current study.

4.1 Records Search Results

A records search was completed for the current project for a one-half mile radius around the project area by staff at the Northwest Information Center (NWIC) at Sonoma State University on August 12, 2016. The records search identified 21 previous studies which have been performed with the records search area; of these, 10 have covered a least a portion of the project area (Table 1). In total, 100% of the project area has been previously surveyed. The records search also identified three (3) historic-age cultural resources near (outside) the project area and eight (8) within the records search area (Table 2; Confidential Appendix A).

Previously Completed Technical Studies

Table 1. Previous Cultural Resource Studies

Report Number	Year	Title	Author
Studies covering a portion of the project area			
S-010699	1989	A Cultural Resources Study for Proposed Petaluma Hill Road Intersection Improvement Projects, Sonoma County, California	Brian F. Terhorst
S-013489	1992	An Archaeological Survey for the Rohnert Park Pipeline Extension, City of Santa Rosa Subregional Water Reclamation System, Rohnert Park, Sonoma County, California	Thomas M. Origer
S-014063	1992	An Archaeological Survey for a Proposed Single Family Residential Development for Vast Oak Properties, Sonoma County, California	Janine M. Loyd and Thomas M. Origer
S-015331	1993	An Archaeological Survey for the Petaluma Hill Road Signal Interconnect Project, Sonoma County, California	Janine M. Loyd
S-020253	1997	A Cultural Resources Survey for the Anderson Ranch Property, 6500 Petaluma Hill Road, Sonoma County, California	Janine M. Loyd and Thomas M. Origer
S-021531	1999	A Cultural Resources Study for the Sonoma State University Campus Addition, Rohnert Park, California	Michael Newland and Jo Markwyn
S-022736	2000	Final Cultural Resources Inventory Report for the Williams Communications, Inc. Fiber Optic Cable System Installation Project, Point Arena to Robbins and Point Arena to Sacramento, California: Volume 1	Jones and Stokes Associates
S-024359	2000	A Cultural Resources Evaluation of the Green Music Center, Sonoma State University, Rohnert Park, Sonoma County, California	William Roop
S-026887	2003	Results of an Archaeological Monitoring Program for the North Property Parking Lot and Phase I of the Green Music Center, Sonoma State University, Rohnert Park, Sonoma County, California	Sally Evans
S-032538	2006	Results of an Archaeological Monitoring Program for the Green Music Center, Sonoma State University, Rohnert Park, Sonoma County, California	Sally Evans
Studies outside of the project area			
S-000154	1975	Archaeological Survey of Student Union Building Site, California State College, Sonoma (letter report)	David A. Frederickson

Table 1. Previous Cultural Resource Studies

Report Number	Year	Title	Author
S-000200	1975	Archaeological Survey of Proposed Entrance Drive, California State College, Sonoma (letter report)	David A. Fredrickson
S-000810	1977	An Archaeological Investigation of the Assembly of God Property Proposed Subdivision, Petaluma Hill Road, Rohnert Park, Sonoma County, California (County File Number F 8896).	Rob J. Jackson
S-001156	1978	Archaeological reconnaissance of property located on Hinebaugh Creek (letter report).	William Roop
S-001255	1978	An Archaeological Investigation of the Suntal Enterprises Corporation Property, A Proposed Minor Subdivision, Rohnert Park, California	Lynn Eisenman
S-013217	1990	An Archaeological Survey for the AT&T Fiber Optics Cable, San Francisco to Point Arena, California	Thomas M. Origer
S-025983	2002	Results of an Archaeological Monitoring Program for the Telecommunication Line, Sonoma State University, Rohnert Park, Sonoma County, California	Sally Evans
S-026360	2002	A Cultural Resources Study of the Canon Manor West Subdivision on the West Side of Petaluma Hill Road, Sonoma County, California	Toni F. Douglass and Thomas M. Origer
S-029267	2004	Cultural Resources Inventory Report for the University District Specific Plan Area, Rohnert Park, Sonoma County, California.	Jones and Stokes
S-029807	2004	A Cultural Resources Study of the Bradley Parcel Along Rohnert Park Expressway, Rohnert Park, Sonoma County, California.	Thomas M. Origer
S-044573	2011	Investigations at Site P-49-002796 Within the Vast Oak Portion of the University District, Rohnert Park, Sonoma County, California	Eileen Barrow and Thomas M. Origer

Loyd and Origer 1997 (S-020253)

The most pertinent of these studies is the "*A Cultural Resources Study for the Anderson Ranch Property, 6500 Petaluma Hill Road, Sonoma, County California,"* (Loyd and Origer 1997). This study provides the results of the cultural resource inventory of the approximately 262-acre Anderson Ranch Property. This cultural inventory encompassed a large portion of the current proposed project area. The study included an archival and literature review and an intensive-level pedestrian survey of the study area. No previously recorded archaeological resources were identified within the study area and no archaeological resources were observed during the survey. However, the Anderson property contained a large amount of scattered (no concentrations) prehistoric materials (stone tools, lithics, and a projectile point) and included an historic era ranch complex and stone fences. The ranch complex was determined to be eligible for the inclusion to the NRHP. The proposed development by Mr. Anderson did not impact the integrity of the ranch complex (Lyod and Origer 1997).

Evans 2003 (S-026887)

The "*Results of an Archaeological Monitoring Program for the North Property Parking Lot and Phase I of the Green Music Center, Sonoma State University, Rohnert Park, Sonoma County, California," report prepared by Evans (2003)* documents the results of the archaeological monitoring of construction excavation for the North Property Parking and Green Music Center project areas. The Green Music Center project area covered a portion of the current proposed project area. Archaeological monitoring occurred from April 9 to June 10, 2002. Monitoring was required for the project due to the presence of a previously recorded archaeological site located within the project area and the four recorded sites located within the main Sonoma State University Campus. No prehistoric resources were observed during construction activities. However, an old foundation was observed in the creek setback along with several historic artifacts; the artifacts were collected. The historic foundation was not impacted by construction activities.

Previously Recorded Cultural Resources

The three previously recorded resources located near the project area include Himebauch Ranch, a stone fence associated with the Himebach Ranch, and the Henderson House (Table 2)

Table 2. Previously Recorded Cultural Resources

Trinomial P-	Period	Type	NRHP/CRHP Status	Description
Resources within the Project Area				
49-002600	Historic	HP2. (Single family property); HP4. (Ancillary building)	Not Eligible for listing on NRHP/CRHP	The Henderson House
49-003055	Prehistoric; Historic	HP2. (Single family property); HP4. (Ancillary building); HP33. (Farm/ranch)	Eligible for listing for listing on NRHP/CRHP	Himebauch Ranch
49-004917	Historic	HP46. (Walls/gates/fences)	No Formal Recommendation	Himebauch Ranch /Anderson Stone Fence
Resources within the One-Half Mile Records Search Area				
49-000993	Prehistoric	AP2. (Lithic scatter)	No Formal Recommendation	Obsidian and chert flakes
49-001460	Prehistoric	AP16. (other)	No Formal Recommendation	Redeposited archaeological materials from other areas; bone, shell, and lithics.
49-001863	Prehistoric	AP15. (Habitation debris)	No Formal Recommendation	Lithic scatter, shell fragments, and groundstone
49-002373	Historic	AH4. (Privies/dump/tr	No Formal Recommendation	Historic refuse scatter

Trinomial P-	Period	Type	NRHP/CRHP Status	Description
		ash scatter)		
49-002796	Prehistoric	AP2. (Lithic scatter)	No Formal Recommendation	Lithic scatter, lithic tools, groundstone, and millingstone
49-003157	Prehistoric	AP2. (Lithic scatter)	No Formal Recommendation	Lithic scatter
49-003159	Prehistoric	AP2. (Lithic scatter)	No Formal Recommendation	Lithic scatter
49-003239	Prehistoric	AP16. (Isolate)	No Formal Recommendation	Obsidian flake

P-49-002600

Markwyn recorded the Henderson House in 1999 as part of the Cultural Resources Survey for the Sonoma State University Campus Addition Project. The historic site consists of a house and outbuildings. It is located on an 8.78 acre parcel in Rohnert Park within the northern boundary of the Sonoma State University Campus. The rest of the parcel contains no buildings are structures. The Henderson House is considered typical of many small rural residences built between 1910 and 1940 in central Sonoma County. The house and outbuildings were evaluated under Criterion 3 on the CRHP and were determined to not have sufficient integrity to be eligible for listing.

P-49-003055

The Himebauch Ranch was originally recorded in 1990 by Whatford as containing a historic house, water tank tower and windmill, and associated farmstead buildings. Loyd and Origer revisited the historic site in 1997 at the request of Quaker Hill Development Corporation, representing the landowner James Anderson. Mr. Anderson made plans to use a portion of the ranch to create an artificial wetland area. Prehistoric cultural materials and the historic ranch were observed during the field survey. In 2008, Painter Preservation and Planning conducted an intensive-level survey of the site for the determination of Historic Significance (based on the 1994 survey of the property). It was recommended that the Himebauch Ranch is eligible for NRHP and CRHR listing because it represents a concentration of historically significant domestic and agricultural buildings, structures and land modifications that form a distinguishable and unified entity for Sonoma County.

P-49-004917

This historic resource consists of the Himebauch Ranch/Anderson stone fence. Origer and Associates recorded the resource in 2004 during the cultural survey of the Anderson Ranch property. The stone fence does not have mortar and measures approximately two feet in height, three feet in width, with three courses. The length of the fence is 1,080 feet.

Historic-Period Map Review

Historic aerial photographs of the project area were available for the years 1952, 1968, 1993 2005, 2009, 2010, and 2012 (Historic aerials 2016). Based on the 1952 aerial, the project area was an open field with agricultural development located within surrounding parcels. Photographs from 1968 to 2012 do not reveal any changes to the project area. The surrounding parcels have been further utilized for agriculture (e.g. orchards). In 1968, Sonoma State University has already been founded and developed (located west of the project area). The photographs also represent the condition of the project area to date; an undeveloped open agricultural field. No obvious signs of Copeland Creek channelization were evident from inspection of these historical aerials and topographic maps.

4.2 Fieldwork Results

A total of 8 shovel test pits (STPs) were placed in areas near where cultural resources had been identified on the surface with the intent of identifying the presence/absence of cultural material within, or near, the proposed water tank and associated linear components. One STP contained subsurface cultural material (within RWT-BB-S-1), however was not within the project footprint. All other STPs were negative.

One isolated resource (defined as 2 or less artifacts in a 30 sq. meter area) was observed to fall within the APE of the planned project road (Table 3). This isolate (RWT-AG-I-3), and isolates in general, are not considered eligible for CRHR or NRHP listing, due to lack of provenience and significance defining values. As such, these do not represent constraints to the project.

Table 3. Extended Phase I testing results

STP	Depth (cmbs)	Results	Soil Description and Findings	Integrity
1	0-20	Positive	Dark brown clay silt: 7 marine bivalve shell fragments	Likely agricultural disturbances 0-10 cmbs.
	20-40	Positive	Dark brown clay silt: 2 obsidian biface fragments, 5 marine bivalve shell fragments	Good

STP	Depth (cmbs)	Results	Soil Description and Findings	Integrity
	40-50	Positive	Dark Brown clay silt, increased cobbles: 3 marine bivalve shell fragments, rock impasse at 50 cmbs. Terminated due to observed presence of cultural material indicating subsurface deposit. All material was left on site in bags with provenience, there is a possibility of additional material at greater depths.	Good
2	0-20	Negative	Yellow brown clay silt, rock impasse at 20 cmbs	Likely agricultural disturbances 0-10 cmbs.
3	0-20	Negative	Light brown silty clay, highly concreted, high rock content. Terminated at 20 cmbs to high rock content and evident lack of potential to encounter cultural content.	Likely agricultural disturbances 0-10 cmbs.
4	0-20	Negative	Light brown silty clay, highly concreted, high rock content	Likely agricultural disturbances 0-10 cmbs.
	20-40	Negative	Light brown silty clay, highly concreted, high rock content. Terminated at 30 cmbs to high rock content and evident lack of potential to encounter cultural content.	Good
5	0-20	Negative	Light brown clay silt, large stones and cobbles	Likely agricultural disturbances 0-10 cmbs.
	20-40	Negative	Light brown clay silt, large stones and cobbles. Terminated at 30 cmbs to high cobble content and evident lack of potential to encounter cultural content.	Good
6	0-20	Negative	Dark brown mottled with light gray, silty clay, compact	Likely agricultural disturbances 0-10 cmbs.
	20-40	Negative	Black clay, trace silt, compact, high frequency of local rock. Terminated at 40 cmbs to high rock content and evident lack of potential to encounter cultural content.	Good

STP	Depth (cmbs)	Results	Soil Description and Findings	Integrity
7	0-20	Negative	Light brown clay silt, extremely compact, 40-60% cobbles. Terminated at 22 cmbs due to high cobble content and evident lack of potential to encounter cultural content.	Likely agricultural disturbances 0-10 cmbs.
8	0-20	Negative	Light brown clay silt, extremely compact, 40-60% cobbles,. Terminated at 20 cmbs due to high rock content and evident lack of potential to encounter cultural content.	Likely agricultural disturbances 0-10 cmbs.

A summary of resources within the project site/parcel are provided here:

RWT-BB-S-1:

This prehistoric site, measuring 50 x 15 meters in size, consists of a sparse scatter of marine shell and lithic artifacts. The resource is located along the western edge of a small improved drainage. The ground surface of this area is largely obscured by low grasses. During survey, shell was observed on the surface. Upon inspection of a subsurface exposure along the drainage's southwestern bank, additional shell and a fragment of lithic shatter were observed. Given the limited visibility on the surface, a crew returned with a rake and excavation equipment to implement an Extended Phase I inventory of this area. One STP was excavated in this area. These efforts resulted in the identification of at least 25 shell fragments (including approximately seven individual shells, with three taxa represented), two obsidian biface fragments (20-40 cmbs), and one fragment of cryptocrystalline silicate (CCS) shatter. All material was left on site in a plastic bag just below the surface. This bag included a tracking sheet with provenience information just. It is likely that there is additional subsurface material associated with this site. Grasses were raked aside every 5 meters (in 2 x 2 meter areas) moving north from this site with the intent of identifying any additional shell or cultural material. No additional material was observed on the surface to the north. Based in these results, artifacts associated with the site appear to be south of the project footprint, and outside of the project APE. Should revisions to the project design involve disturbances to this site area, additional evaluation efforts for CRHR/NRHP listing will be required.

RWT-AG-I 1:

This isolate consists of one rhyolite core. While the material is consistent with the extruding volcanic material along the southwestern slope of this hillside, no definitive evidence of local prehistoric or historic-period exploitation of this material was observed during a thorough inspection of these outcrops. Four (4) STPs were excavated in this area, all of which yielded negative results. Given the lack of observed evidence for use as a quarry (which would include a high abundance of lithic waste associated with the process of assaying material), no site was recorded in this area. The material is of relatively poor quality within the portion of the slope that intersects the planned project parcel, and it is possible that outcrops of more favorable quality are present elsewhere. No rhyolitic lithic artifacts or debitage were recorded in the catalogue of recovered cultural material from P-49-002796, located beneath the parking area west of the SSU Green Music Center. The absence of this material from the assemblage of this near-by prehistoric habitation site further suggests its lack of utilization. No constraints to the project are presented by the presence of this isolate or the rhyolite outcrops.

RWT-AG-I-2:

Isolate includes one depleted chert core identified in a disturbed area previously excavated for wetland delineation. Exact provenience of this item is unclear. This item is located south of the road and pipeline alignment for the water tank, outside of the APE. An STP was excavated near this isolate with negative results. This isolate is not CRHR/NRHP eligible, and does not present any constraints to the present project.

RWT-AG-I-3:

This isolate includes one CCS shatter and one small fragment of marine shell within 13 meters on road. Both items were identified within the proposed road, intersecting the project APE. Two STPs were excavated in this area with negative results. It is likely that this material has been washed from elsewhere. This isolate is not CRHR/NRHP eligible, and does not present any constraints to the present project.

4.3 Tribal Correspondence

The Native American Heritage Commission (NAHC) was contacted by Dudek on August 4, 2016 to request a search of the Sacred Lands File. The NAHC responded on August 12, 2016 indicating that the search failed to identify any Native American resources in the vicinity of the project and provided a list of individuals and organizations to contact that may have additional information. Letters were sent, and follow up calls made, by the City to each of the NAHC-contacts in September, 2016 (Table 4). Letters and voice messages contained a summary of the planned project, timing for consultation (pursuant to CEQA Assembly Bill 52), and an offer to provide any available cultural resources technical information if requested. One request for additional information was received from Buffy McQuillen, Tribal Historic Preservation Officer (THPO) for the Federated Indians of Graton Rancheria. In response to this request, the City provided a memo summarizing the results of the NWIC records search, as well as the NWIC results themselves. No additional responses have been received, including from Ms. Buffy McQuillen. A record of correspondence can be provided from the City upon request, and results of the NAHC SLF search are included in Appendix B. No tribal cultural resources have been identified within the project APE through this correspondence.

Table 4. Tribal correspondence

Tribal Representative	Tribe/ Organization	Letters	Phone	Comments
Buffy McQuillen, THPO	Federated Indians of Graton Rancheria	October, 2016	October, 2016	Responded to City project notification. Was provided NWIC records search results. No additional response has been received
Greg Sarris, Chairperson	Federated Indians of Graton Rancheria	September, 2016	September, 2016	No response received
Gene Buvelot	Federated Indians of Graton Rancheria	September, 2016	September, 2016	No response received
Don Ryberg, Chairperson	Federated Indians of Graton Rancheria	September, 2016	September, 2016	No response received

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5 SUMMARY AND MANAGEMENT CONSIDERATIONS

The City is the lead agency responsible for compliance with the California Environmental Quality Act (CEQA). As the project will likely apply for a State Revolving Fund loan and requires a Section 404 Clean Water Act permit, effects to cultural resources pursuant to Section 106 of the NHPA will also be subject to review by the State Water Board and ACOE.

This study consisted of a records search of the project area and a half-mile radius around the project area, NAHC Sacred Lands File search, intensive-level pedestrian survey, and Extended Phase I survey of the APE. A NAHC Sacred Lands File did not indicate the presence of any Native American cultural resources in or near the project area. Subsequent Native American outreach by letter and phone for the project was made with NAHC-listed Tribal representatives by the City. At this tribe's request, the City has provided the NWIC records search results to Federated Indians Graton Rancheria. No additional requests have been received by the City from NAHC-listed tribal representatives to date, and no specific tribal cultural resources have been identified within or near the APE.

Inventory efforts identified one (1) prehistoric isolate within the planned APE. Isolates are not considered eligible for listing in the California Register of the Historical Resources (CRHR) or the National Register of Historic Places (NRHP). Two (2) additional prehistoric isolates and one prehistoric archaeological site were identified within 100 feet, outside of, the APE. No known significant archaeological resources will be impacted by planned project activities. In consideration of the identified presence of archaeological resources in the vicinity, and the geomorphology of the surrounding soils, there is potential for the project to encounter yet-identified cultural material or deposits within portions of the project APE located east of Petaluma Hill Road. Based on these results, implementation of a cultural monitoring program is recommended within these portions of the APE. With this mitigation in place, no known or yet-identified archaeological resources will be impacted (No Historic Properties Affected) by the project as currently designed.

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6 MITIGATION AND MONITORING PLAN

The following plan has been prepared with the intent of aiding in future cultural monitoring efforts completed for the project.

Monitoring Roles and Responsibilities

The City shall require that Native American and archaeological monitors are present during all initial ground-disturbing activities with the potential to encounter Native American cultural resources. Prior to the initiation ground-disturbing work, construction crews will be made aware of the potential to encounter cultural resources and the requirement for cultural monitors to be present during these activities. Areas observed to have potential to contain yet-identified subsurface cultural material or deposits are located east of Petaluma Hill Road within portions of the APE leading to the water tank site. Archaeological and Native American monitoring may be adjusted at the recommendation of the qualified archaeological principal investigator, and in consultation with the City, based on inspection of exposed subsurface soils and their observed potential to contain intact cultural deposits or material. The Native American monitor or associated tribe may contact the City should they disagree with adjustments to cultural monitoring or evaluation efforts.

The archaeological and tribal monitors shall be provided a copy of this technical report and its pertinent appendices to inform their monitoring efforts. The archaeological and tribal monitors shall have the authority to temporarily halt work to inspect areas as needed for potential cultural material or deposits. In the event that archaeological resources (sites, features, or artifacts) are exposed during construction activities for the proposed project, all construction work occurring within 100 feet of the find shall immediately stop until the qualified archaeological principal investigator, meeting the Secretary of the Interior's Professional Qualification Standards, can evaluate the significance of the find and determine whether or not additional study is warranted. Should it be required, temporary flagging may be installed around this resource in order to avoid any disturbances from construction equipment. Depending upon the significance of the find under CEQA (14 CCR 15064.5(f); PRC Section 21082), the archaeological monitor in correspondence with the qualified archaeological principal investigator may simply record the find to appropriate standards (thereby addressing any data potential) and allow work to continue. If the qualified archaeological principal investigator observes the discovery to be potentially significant under CEQA or Section 106 of the NHPA, additional efforts such as preparation of an archaeological treatment plan, testing, and/or data recovery may be warranted prior to allowing construction to proceed in this area. The feasibility for avoidance will also be discussed with the City if appropriate.

In accordance with Section 7050.5 of the California Health and Safety Code, if potential human remains are found the county coroner shall be immediately notified of the discovery. The coroner will provide a determination within 48 hours of notification. No further excavation or disturbance of the identified material, or any area reasonably suspected to overlie additional remains, shall occur until a determination has been made. If the county coroner determines that the remains are, or are believed to be, Native American, they shall notify the Native American Heritage Commission (NAHC) within 24 hours. In accordance with California Public Resources Code Section 5097.98, the NAHC must immediately notify those persons it believes to be the most likely descendent (MLD) from the deceased Native American. Within 48 hours of their notification, the MLD will recommend to the lead agency their preferred treatment of the remains and associated grave goods.

Reporting Requirements

Daily monitoring logs will be completed by onsite archaeological and Native American monitors. Within 60 days following completion of construction, the qualified archaeological principal investigator shall provide an archaeological monitoring report to the City. This report shall include the results of the cultural monitoring program (even if negative), including a summary of any findings or evaluation/data recovery efforts, and supporting documentation that demonstrates all mitigation measures defined in the Environmental Impact Report (EIR) were appropriately met. Appendices should include archaeological and Native American monitoring logs and documentation relating to any newly identified or updated cultural resources.

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Appendix A (CONFIDENTIAL)

NWIC Search Results and DPR Forms for Newly Recorded Resources

APPENDIX B

NAHC and Tribal Correspondence

Tribal Representative	Tribe/ Organization	Letters	Phone	Comments
Buffy McQuillen, THPO	Federated Indians of Graton Rancheria	October, 2016	October, 2016	Responded to City project notification. Was provided NWIC records search results. No additional response has been received
Greg Sarris, Chairperson	Federated Indians of Graton Rancheria	September, 2016	September, 2016	No response received
Gene Buvelot	Federated Indians of Graton Rancheria	September, 2016	September, 2016	No response received
Don Ryberg, Chairperson	Federated Indians of Graton Rancheria	September, 2016	September, 2016	No response received

NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
(916) 373-3710
Fax (916) 373-5471

August 12, 2016

Adam Giancinto
DUDEK

Sent by Email: agiacinto@dudek.com
Number of Pages: 2

RE: Rohnert Park Tank Project, Sonoma County

Dear Mr. Giacinto:

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

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

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

Sincerely,

Sharaya Souza
Staff Services Analyst

Native American Contacts
Sonoma County
August, 12, 2016

Federated Indians of Graton Rancheria
Greg Sarris, Chairperson
6400 Redwood Drive, Ste 300 — Coast Miwok
Rohnert Park , CA 94928 — Southern Pomo
(707) 566-2288 Office
(707) 566-2291 Fax

Federated Indians of Graton Rancheria
Gene Buvelot
6400 Redwood Drive, Ste 300 — Coast Miwok
Rohnert Park , CA 94928 — Southern Pomo
gbuvelot@gratonrancheria.
(415) 279-4844 Cell
(707) 566-2288 ext 103

Lytton Rancheria of California
Marjorie Mejia, Chairperson
437Aviation Blvd — Pomo
Santa Rosa , CA 95403
margiemejia@aol.com
(707) 575-5917
(707) 575-6974 - Fax

This list is current only as of the date of this document and is based on the information available to the Commission on the date it was produced.

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 assessments for the proposed Rohnert Park Tank Project, Sonoma County.

APPENDIX C

Pertinent Archaeological and Geotechnical Reports

GEOTECHNICAL EXPLORATION

ANDERSON 128 PROPERTY
WATER RESERVOIR

ROHNERT PARK, CALIFORNIA

SUBMITTED

TO

UD LLC

DANVILLE, CALIFORNIA

PREPARED

BY

ENGEO INCORPORATED

PROJECT NO. 5716.1.007.01

April 22, 2005

Project No.
5716.1.007.01

April 22, 2005

Mr. Kevin Fredrickson
UD LCC
500 LaGonda Way, Suite 100
Danville, CA 94526

Subject: Anderson 128 Property
Water Reservoir
Rohnert Park, California

GEOTECHNICAL EXLORATION

Dear Mr. Fredrickson:

ENGEO Incorporated is pleased to present this geotechnical exploration for the proposed water reservoir site on the Anderson 128 property located in Rohnert Park, California. The purpose of this geotechnical exploration is to provide the soil and geologic conditions affecting the subject site for the proposed development.

We look forward to working with you on this project. If you have any questions regarding the information included in the report, please do not hesitate to contact us.

Very truly yours,

ENGEO INCORPORATED

Keith Nowell
Staff Geologist

REGISTERED PROFESSIONAL ENGINEER
JOSEF J. TOOTLE
2677
Exp: 6/30/06
GEOTECHNICAL
STATE OF CALIFORNIA

Josef J. Tootle, GE
Associate

kn/tpb/cc:gex

Reviewed by:

Theodore P. Bayham, GE
Principal

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5716.1.007.01
April 22, 2005

INTRODUCTION

Purpose and Scope

The purpose of this report is to characterize geologic conditions of the site and provide geotechnical conclusions and recommendations to assist you and your design team in the planning of the proposed project.

The scope of our work for this project included the following:

1. Review of previously published maps and reports regarding geological and geotechnical characteristics of the subject site.
2. Excavation and logging of exploratory trenches and test pits.
3. Exploratory drilling, sampling and laboratory testing of subsurface materials.
4. Analysis of the geological and geotechnical data.
5. Preparation of this report summarizing our findings and water tank site recommendations.

This report was prepared for the exclusive use of UD LLC, and its design team consultants. In the event that any changes are made in the character, design or layout of the development, the conclusions and recommendations contained in this report must be reviewed by ENGEO Incorporated to determine whether modifications to the report are necessary. This document may not be reproduced in whole or in part by any means whatsoever, nor may it be quoted or excerpted without the express written consent of ENGEO Incorporated.

Site Location and Description

The study area is the central portion of an irregular shaped parcel located east of Petaluma Hill Road, south of the Rohnert Park Expressway intersection in Rohnert Park, California (Figure 1).

The western edge of the 128-acre property is located along Petaluma Hill Road. The proposed water reservoir will be located on the south western facing slope of the hill slope in the central portion of the site. Elevations at the proposed tank site range from approximately 250 to approximately 280 feet above mean sea level (msl). The site is currently undeveloped. Vegetation at the tank site is generally composed of grasses and brush.

Proposed Development

It is our understanding that this area of the property will be developed with a potable water reservoir and underground utilities and access roadways. The proposed development will consist of cuts on the order of 20 to 30 feet to construct a relatively level building pad.

GEOLOGIC CONDITIONS

Site Geology

The site is located within the central part of the Coast Ranges Geomorphic Province of California. Active faulting within the Coast Ranges has developed in response to complex interactions along the transform boundary between the North American and Pacific tectonic plates. In general, the relative motion along the boundary between the two plates is right-lateral strike-slip, with the Pacific Plate moving northwestward with respect to the North American Plate. The San Andreas fault system, defined as the San Andreas fault, as well as the associated strands that splay from it (i.e. the Rodgers Creek, Tolay, Maacama, and Hayward faults, as well as others), is the main transform fault system along this boundary and accommodates approximately 80 percent of the relative motion along the broad boundary between the North American and Pacific plates (Argus and Gordon, 1991).

A published geologic map of the vicinity compiled by Fox (1973) indicates the site is depicted as Tertiary andesitic to basaltic lava flows (Tsa) in the eastern area of the site that this report addresses (Figure 2). The Quaternary deposits are shown as a centrally located northeast-southwest trending belt of fan deposits (Qyf) consisting of fine sand and silt, with gravel becoming more abundant toward the fan heads, with fluvial deposits (Qyfo), characterized by fine sand, silt, and clay, depicted in the west site area.

Site Seismicity

No active faults are mapped across the project site by the California Division of Mines and Geology (CDMG) or United States Geological Survey (USGS). The site is located in a region that contains numerous active earthquake faults. No known faults cross the property and the nearest known active[1] faults are the Rogers Creek fault located about 1½ miles east; Maacama fault located about 16 miles northeast; the West Napa fault, about 16 miles to the east and the San Andreas fault approximately 17 miles to the west of the site. The site is not located within a state-mandated Earthquake Fault Zone.

Numerous small earthquakes occur every year in the San Francisco Bay Region, and larger earthquakes have been recorded and can be expected to occur in the future. Figure 3 shows the approximate locations of these faults and significant historic earthquakes recorded within the San Francisco Bay Region.

[1] An active fault is defined by the State Mining and Geology Board as one that has had surface displacement within Holocene time (about the last 10,000 years) (Hart, 1992).

FIELD EXPLORATION

The field exploration for this study was conducted on March 10 and 11, 2005, and consisted of two exploratory borings at the approximate locations shown on Figure 4. The locations were selected based on the site accessibility and such that subsurface site conditions could be determined in the area of the reservoir. An ENGEO geologist logged the borings in the field in accordance with the Unified Soil Classification System. The boring logs are included in this report (Appendix B). The borings were performed using a CME 850 tracked rig and equipped with an NX rock coring bit.

Laboratory Testing

Following drilling, we reexamined the samples in our laboratory to confirm field classifications. Representative samples recovered from our borings were tested for the following physical characteristics:

Characteristic	Test Method	Location of Results Within this Report
Atterberg Limits	ASTM D-4318	Appendix B

Laboratory test results of the samples recovered are included on the laboratory figures in Appendix B as noted above.

Subsurface Stratigraphy

The surface soils at the site generally consist of approximately 2 feet of clayey sands and silty clays. The surface soils were underlain by Tertiary igneous bedrock which primarily consist of andesitic to basaltic lava flows. The bedrock is friable to strong, closely to moderately fractured, and deeply to moderately weathered. The Rock Quality Designation (RQD) range from 0 up to a maximum RQD of 54 percent. Tuff beds were encountered in both borings and these had approximate thickness of 1 to 2 feet. The tuff beds are highly plastic and highly expansive when subject to fluctuations in moisture content.

Groundwater Conditions

Groundwater could not be measured due to the exploratory method used. Fluctuations in groundwater levels may occur seasonally and over a period of years because of precipitation, changes in drainage patterns, irrigation, and other factors.

GEOLOGIC HAZARDS

Seismic Hazards

Seismic hazards can generally be classified as primary and secondary. The primary effect is ground rupture, also called surface faulting. Common secondary seismic hazards include ground shaking, lurch cracking, soil liquefaction, lateral spreading, landslides, and tsunamis and seiches. The risk of regional subsidence/uplift, landslides, tsunamis or seiches is considered unlikely at the site. The risk of earthquake-induced ground rupture, liquefaction, densification, lateral spreading, and lurching are discussed below.

Ground Rupture. Since there are no known active faults crossing the site and the site is not within a State of California Earthquake Fault Hazard Zone, the risk of ground rupture related to faulting is considered remote.

Ground Shaking. An earthquake of moderate to high magnitude generated within the San Francisco Bay Region could cause considerable ground shaking at the site. To mitigate the shaking effects, all structures should be designed using sound engineering judgment and the latest Uniform Building Code (UBC) requirements as a minimum (SEAOC, 1996). Deterministic computer studies from current California fault data yield a mean horizontal bedrock acceleration of 0.55g from the nearby Rodgers Creek fault based on the attenuation relation by Idriss (1993).

The near source factors, N_a and N_v, are based on the Rodgers Creek fault being a seismic source type A, approximately 1½ miles (2½ km) away. The UBC parameters for the reservoir design are presented in the following table:

1997 UNIFORM BUILDING CODE - Chapter 16

ITEM	DESIGN VALUE	SOURCE
Seismic Zone	4	Figure 16-2
Seismic Zone Factor	0.40	Table 16-I
Soil Profile Type	S_B	Table 16-J
Seismic Source Type	A	Table 16-U
Near Source Factor, Na	1.5	Table 16-S
Near Source Factor, Nv	2.0	Table 16-T
Seismic Coefficient, Ca	0.60 (0.40Na)	Table 16-Q
Seismic Coefficient, Cv	0.80 (0.40Nv)	Table 16-R

Seismic design provisions of current building codes generally prescribe minimum lateral forces applied statically to the structure, combined with the gravity forces of dead-and-live loads. The code-prescribed lateral forces are generally considered to be substantially smaller than the comparable forces that would be associated with a major earthquake. Therefore, structures should be able to: (1) resist minor earthquakes without damage; (2) resist moderate earthquakes without structural damage but with some nonstructural damage; and (3) resist major earthquakes without collapse but with some structural as well as nonstructural damage. Conformance to the current building code recommendations does not constitute any kind of guarantee that significant structural damage would not occur in the event of a maximum magnitude earthquake; however, it is reasonable to expect that a well-designed and well-constructed structure will not collapse or cause loss of life in a major earthquake (SEAOC, 1996).

Landslides. No landslides were mapped at, immediately adjacent to, the location of the proposed reservoir tank site. Minor areas of slope instability were observed at other locations along the hill slope, but they are not anticipated to have a significant detrimental impact to the tank site location.

CONCLUSIONS AND RECOMMENDATIONS

Based on our exploration, we conclude that the proposed water reservoir project is feasible from a geotechnical standpoint. The primary geotechnical concern is the potential for on-site differential expansion below the tank site due to the presence of highly expansive tuff beds within the bedrock at the proposed reservoir location. Expansive bedrock can experience volume changes due to seasonal fluctuations in moisture content. To minimize the potential impact of the expansive site materials, the proposed reservoir tank should be underlain by relatively uniform subgrade materials.

Grading

Grading operations should meet the requirements of the "Guide Contract Specifications" included in Appendix D and should be observed and tested by ENGEO's field representative. The Geotechnical Engineer or qualified representative should be present during all phases of grading operations to observe demolition, site preparation, grading operations, and subdrain placement. The Geotechnical Engineer should be notified a minimum of 72 hours prior to the commencement of any grading or stripping operations at the site. This is to provide time to coordinate the work with the Grading Contractor.

Demolition and Stripping

All existing vegetation and soft or compressible soils in areas to be graded should be removed as necessary for project requirements. The depth of removal of these materials should be determined by the Geotechnical Engineer or qualified representative in the field at the time of grading. Evaluation of unsuitable deposits should be performed during grading by sampling and laboratory analyses.

Construction areas receiving fill and those areas that serve as borrow for fill should be stripped of existing vegetation. Actual depths will be determined by the Geotechnical Engineer or qualified representative in the field during grading. Site strippings should be reserved for placement in approved open space areas or landscape areas. Any topsoil retained for future use in landscape areas should be approved by the Landscape Architect and stockpiled in areas where it will not interfere with construction operations. Within the development areas, excavations resulting from demolition, clearing, and/or stripping which extend below final grades should be cleaned to firm undisturbed soil as determined by the Geotechnical Engineer's representative. All test pits were loosely backfilled after the completion of the field exploration. It will be necessary to remove and recompact all loose soil within the pits that will remain below final grades. All loose soil material should be removed and recompacted.

Subgrade Preparation

We anticipate that the tank pad will be excavated in bedrock. However, we expect that some variation in rock characteristics may be exposed at the subgrade level, and therefore we recommend that the tank area be subexcavated a minimum depth of 5 feet and grades restored with engineered fill. An evaluation of the need to perform the subexcavation should be made by the Geotechnical Engineer or Engineering Geologist, in conjunction with the utility district, at the time of construction.

The bedrock materials encountered were friable to moderately strong and crushed to closely fractured. Based on these characteristics we anticipate that the bedrock materials should be rippable with heavy duty grading equipment (ie, Caterpillar D-9 dozers, etc.). However, oversize fragments that may be difficult to break down could be generated during the grading operations.

Fill Materials

The site soils and bedrock are suitable to be reused as engineered fill provided these are processed to meet the grading specification requirements. Import materials, if any are needed, must meet the requirements contained in Section 2.02B, Part I of the Guide Contract Specifications. The Geotechnical Engineer should be informed if any importation of soil is contemplated. A sample of the proposed import material should be submitted to the Geotechnical Engineer for evaluation prior to delivery at the site.

Placement of Fill

With the exception of organically-contaminated near-surface material, on-site soils containing less than 3 percent organics are suitable for use as engineered fill. The following compaction control requirements are generally applied to all fills:

Test Procedures:	ASTM D-1557.
Required Moisture Content:	General engineered fill should be moisture conditioned to at least 2 percentage points above optimum moisture content.
Relative Compaction:	General engineered fill should be compacted to a minimum of 90 percent of relative compaction.

All fills should be placed in thin lifts. The lift thickness should not exceed 8 inches or the depth of penetration of the compaction equipment used, whichever is less. In general, all site preparation and grading should be performed in accordance with the Contract Guide Specifications presented in Appendix D. All site preparations for site grading should be done under the observation of the Geotechnical Engineer or his/her qualified field representative.

Graded Slopes

Cut and fill slopes can be constructed up to 30 feet at an inclination of 2:1 (horizontal:vertical) without intermediate benches. Slopes higher than 30 feet should be constructed at an inclination of 3:1 or intermediate benches should be provide in accordance with the requirements of the 1997 Uniform Building Code.

Foundation Design

Provided that the tank area has been prepared as recommended in this report, it is our opinion that the proposed water tank and associated facilities can be constructed on a continuous spread footings bearing on engineered fill. The Structural Engineer should determine all foundation reinforcement based on the anticipated structural loads. The foundation plans should be submitted to the Geotechnical Engineer for review when they become available.

The geotechnical design criteria to be used in footing sizing are as follows:

Minimum depth of footing embedment:	18 inches below lowest adjacent grade.
Minimum width of footing:	18 inches.
Maximum allowable footing pressure:	4,000 pounds per square foot (psf) for dead-plus-live loads. This value may be increased by one-third for total loads.

The foundation excavation should not be allowed to desiccate significantly prior to placement of concrete. The tank subgrade materials should be moisture conditioned by sprinkling prior to the installation of the tank to compensate for any loss of moisture which may occur between the end of the grading and the installation of the tank. Ponding of water below the water tank may result in weakening of the subgrade materials. To mitigate possible water leakage from the water tank, a subsurface drainage system should be provided. A perimeter subdrain should be provided along the inside edge of the ring footing. This subdrain system should consist of a 4-inch-diameter perforated pipe encapsulated by a clean, free-draining crushed rock or gravel layer at least 12 inches wide surrounded by filter fabric. As an alternative to the gravel drain, a prefabricated subdrain system can be installed.

Lateral loads may be resisted by frictional resistance between the foundation concrete and the subgrade soils and by passive earth pressure acting against the side of the foundation. A coefficient of friction of 0.35 can be used between concrete and the subgrade. In addition, an allowable passive pressure based on an equivalent fluid weight of 350 pounds per cubic foot can be used in design.

Retaining Walls

Drained retaining walls should be designed for active lateral equivalent fluid pressures determined as follows:

Backfill Slope	Unrestrained (pcf)	Restrained (pcf)
Level	35	35+8H
4:1	40	40+8H
3:1	45	45+8H
2:1	55	55+8H

In addition to the active earth pressures, the retaining walls should be designed for the dynamic increment of wall pressure associated with earthquake loading. The following earthquake loadings should be used for design and are assumed to correspond to an inverted triangular distributed pressure, with zero pressure at the base of the wall increasing upwards:

Backfill Slope	Unrestrained (pcf)	Restrained (pcf)
Level	30	90
4:1	45	135
3:1	65	195
2:1	90	270

An inverted triangular distributed pressure would yield a resultant location two-thirds up from the base of the wall. However, since the triangular distribution is only an approximation, standard practice suggests that the resultant of the pressure distribution should be applied at a height of 0.6H above the base of the wall where H is the height of retained soil.

All retaining walls should be provided with drainage facilities to prevent the build-up of hydrostatic pressures behind the walls. Wall drainage should be provided using a 4-inch-diameter perforated pipe (perforations down) embedded in Caltrans Class 2 permeable material, or free-draining gravel surrounded by synthetic filter fabric. The drain rock should extend a minimum of 12 inches behind the wall and to about 12 inches below the finished grades. As an alternative, prefabricated synthetic wall drain panels can be used. The upper 12 inches of wall backfill should consist of on-site clayey soils. Drainage should be collected by perforated pipes and directed to an outlet approved by the Civil Engineer. Synthetic filter fabric should meet the minimum requirements of the Guide Contract Specifications.

All retaining wall backfill should be placed in accordance with recommendations provided above for engineered fill. Light equipment should be used during backfill compaction to minimize possible overstressing of the walls.

As an alternative to pre-cast, cast-in-place, or masonry block retaining walls, cut slopes can be supported by a soil nail wall. Soil nail walls should be designed for global, local and internal stability. The following parameters should be used for design of the soil nail stability:

Soil Material	Unit Weight (pcf)	Friction Angle (degrees)	Cohesion (psf)	Allowable Bond Stress (psi)
Andesite	130	35	0	10

Preliminary Pavement Design

Based on the field explorations and laboratory testing, we estimate that site soils will have a resistance ("R") value of 25. The following preliminary pavement sections have been determined for Traffic Indices of 5, 6 and 7 based on an assumed R-value of 25 according to the method contained in Topic 608 of Highway Design Manual by Caltrans.

Traffic Index	Pavement Section	
	AC in. (mm)	AB in. (mm)
5.0	3.0	6.5
6.0	3.5	8.5
7.0	4.0	11.0

Notes: AC is asphalt concrete
AB is aggregate base Class 2 Material with minimum R = 78

The Traffic Index should be determined by the Civil Engineer or appropriate public agency. These sections are for estimating purposes only. Actual sections to be used should be based on R-value tests performed on samples of actual subgrade materials recovered at the time of grading. Pavement construction and all materials should comply with the requirements of the Standard Specifications of the State of California Division of Highways, County requirements and the following minimum requirements.

- All pavement subgrades should be scarified to a depth of 12 inches (30 centimeters) below finished subgrade elevation, moisture conditioned to 3 percentage points above optimum, and compacted to at least 92 percent relative compaction and in accordance with County requirements.

- Subgrade soils should be in a stable, non-pumping condition at the time aggregate baserock materials are placed and compacted.

- Adequate provisions must be made such that the subgrade soils and aggregate baserock materials are not allowed to become saturated.

- Aggregate baserock materials should meet current Caltrans specifications for Class 2 aggregate baserock and should be compacted to at least 95 percent of maximum dry density at a minimum moisture content of optimum.

- Asphalt paving materials should meet current Caltrans specifications for asphalt concrete.

- All concrete curbs separating pavement and irrigated landscaped areas should extend into the subgrade and below the bottom of adjacent aggregate baserock materials.

Utilities

It is recommended that all utility trench backfill be done under the observation of a Geotechnical Engineer. Pipe zone backfill (i.e., material beneath and immediately surrounding the pipe) may consist of a well-graded import or native material less than ¾ inch (2 centimeters) in maximum dimension. Trench zone backfill (i.e., material placed between the pipe zone backfill and the ground surface) may consist of native soil compacted in accordance with recommendations for engineered fill.

Where import material is used for pipe zone backfill, we recommend that it consist of fine- to medium-grained sand or a well-graded mixture of sand and gravel and that this material not be used within 2 feet of finish grades. In general, uniformly graded gravel should not be used for pipe or trench zone backfill due to the potential for migration of (1) soil into the relatively large void spaces present in this type of material; and (2) water along trenches backfilled with this type of material. All utility trenches entering buildings and paved areas must be provided with an impervious seal consisting of native materials or concrete where the trenches pass under structure perimeters or curb lines. The impervious plug should extend at least 3 feet (1 meter) to either side of the crossing. This is to prevent surface water percolation into the sands under foundations and pavements where such water would remain trapped in a perched condition, allowing clays to develop their full expansion potential.

Utility trenches should not be located upslope of any foundation area unless the placement, depth, and backfill material to be used are reviewed by the Geotechnical Engineer. Care should be exercised where utility trenches are located beside foundation areas. Utility trenches constructed parallel to foundations should be located entirely above a plane extending down from the lower edge of the footing at an angle of 45 degrees. Utility companies and Landscape Architects should be made aware of this information.

Utility trenches in areas to be paved should be backfilled to the specifications provided in this report for engineered fill. Compaction of trench backfill by jetting shall not be allowed at this site.

LIMITATIONS AND UNIFORMITY OF CONDITIONS

This geotechnical report is issued with the understanding that it is the responsibility of the owner to transmit the information and recommendations of this report to developers, contractors, buyers, architects, engineers, and designers for the project so that the necessary steps can be taken by the contractors and subcontractors to carry out such recommendations in the field. The conclusions and recommendations contained in this report are solely professional opinions.

The professional staff of ENGEO Incorporated strives to perform its services in a proper and professional manner with reasonable care and competence but is not infallible. There are risks of earth movement and property damages inherent in land development. We are unable to eliminate all risks or provide insurance; therefore, we are unable to guarantee or warrant the results of our work.

This report is based upon field and other conditions discovered at the time of preparation of ENGEO's work. This document must not be subject to unauthorized reuse, that is, reuse without written authorization of ENGEO. Such authorization is essential because it requires ENGEO to evaluate the document's applicability given new circumstances, not the least of which is passage of time. Actual field or other conditions will necessitate clarifications, adjustments, modifications or other changes to ENGEO's work. Therefore, ENGEO must be engaged to prepare the necessary clarifications, adjustments, modifications or other changes before construction activities commence or further activity proceeds. If ENGEO's scope of services does not include on-site construction observation, or if other persons or entities are retained to provide such services, ENGEO cannot be held responsible for any or all claims, including, but not limited to claims arising from or resulting from the performance of such services by other persons or entities, and any or all claims arising from or resulting from clarifications, adjustments, modifications, discrepancies or other changes necessary to reflect changed field or other conditions.

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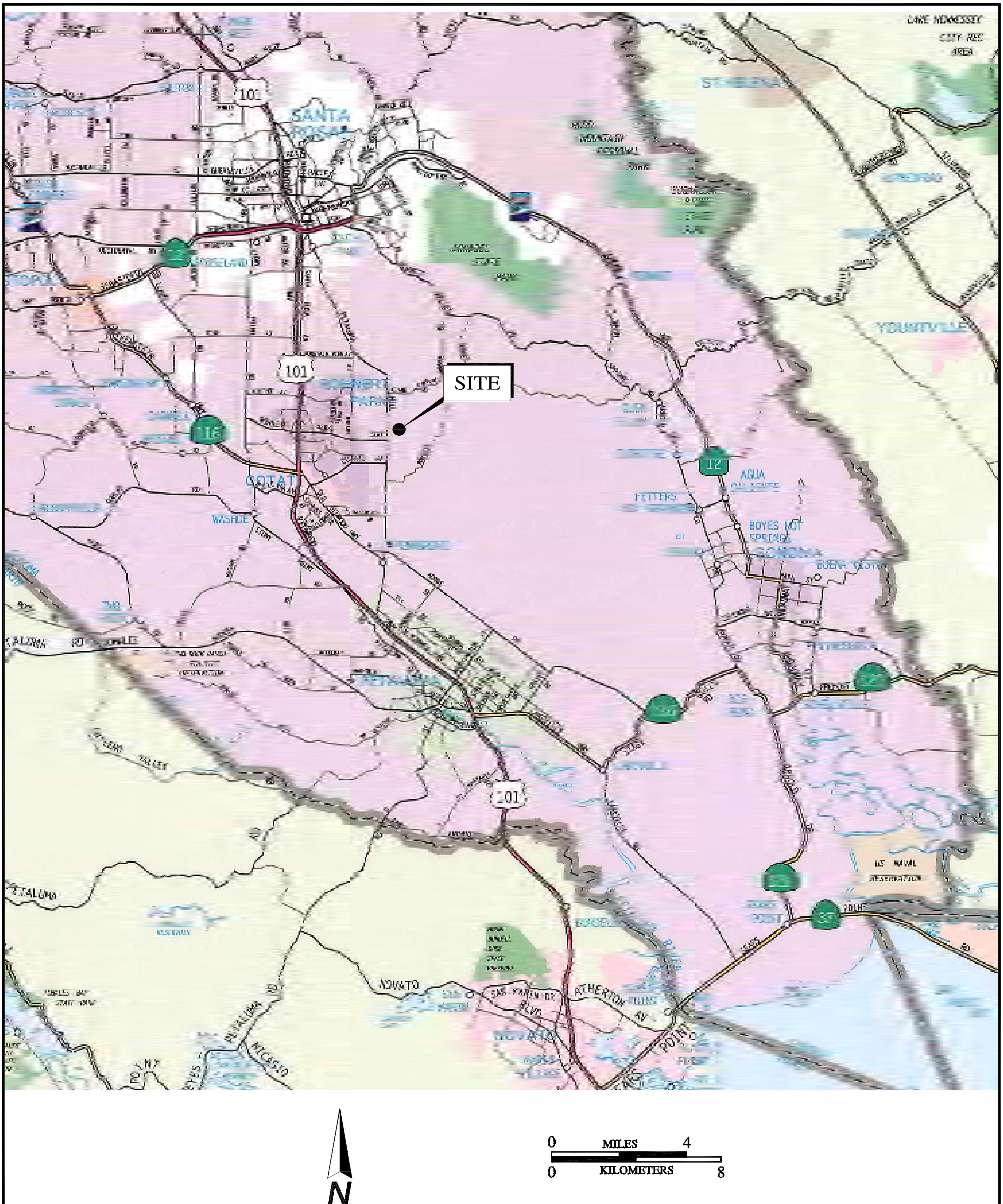
APPENDIX A



BASE MAP SOURCE: THOMAS BROTHERS

ENGEO INCORPORATED EXCELLENT SERVICE SINCE 1971	SITE VICINITY MAP ANDERSON 128 PROPERTY ROHNERT PARK, CALIFORNIA	PROJECT NO.: 5716.1.007.01 DATE: APRIL 2005 DRAWN BY: CLL CHECKED BY: JT	FIGURE NO. 1

ORIGINAL FIGURE PRINTED IN COLOR

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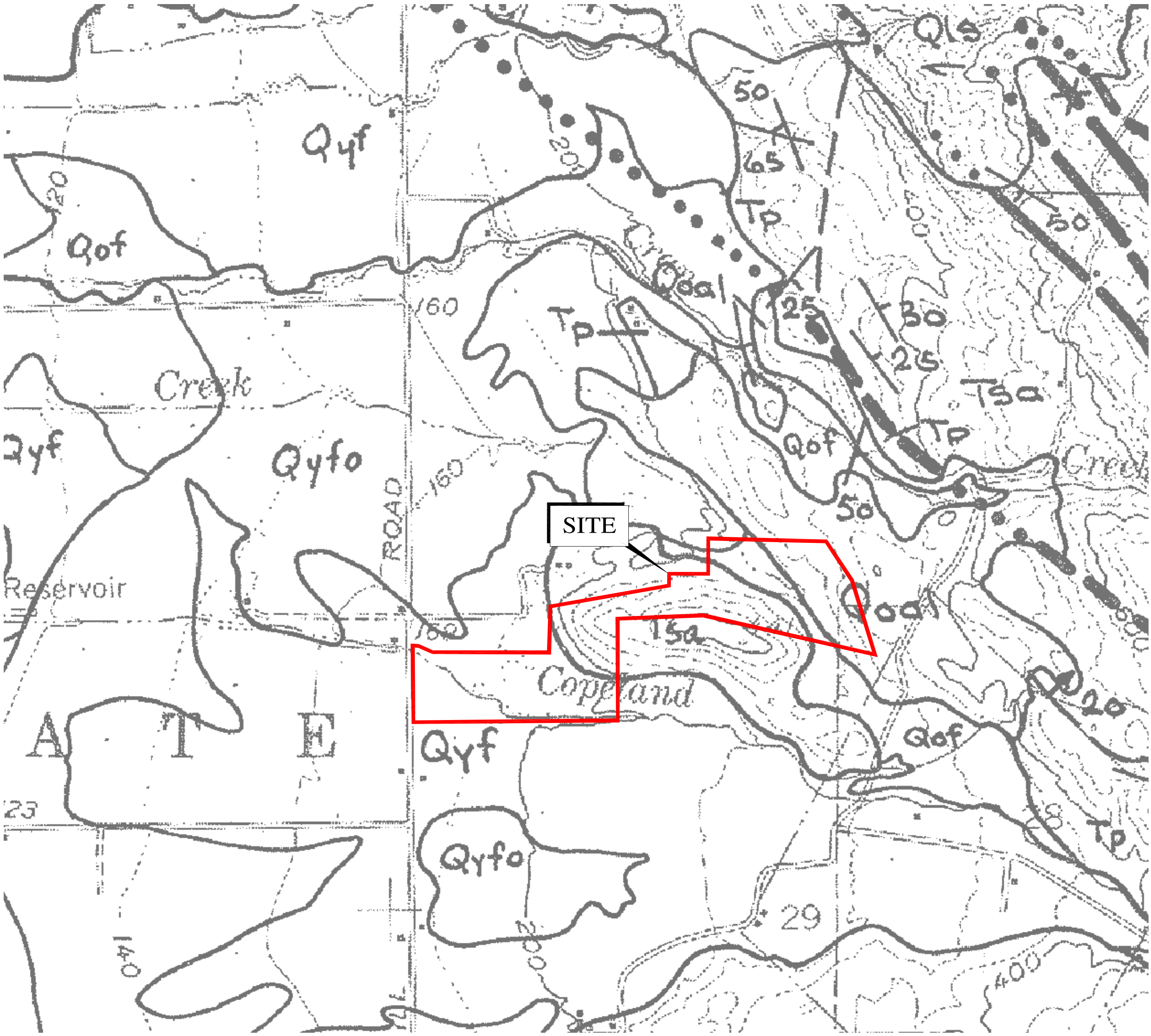

EXPLANATION

Qoal OLDER ALLUVIUM

Qyf ALLUVIAL FAN DEPOSITS

Qyfo FLUVIAL DEPOSITS

Tp PETALUMA FORMATION

Tsa ANDESITIC TO BASALITIC LAVA FLOWS

GEOLOGIC CONTACT

FAULT - DASHED WHERE APPROXIMATELY LOCATED, SHORT DASHED WHERE INFERRED, DOTTED WHERE CONCEALED

STRIKE AND DIP OF BEDDING

N

0 FEET 2000

0 METERS 1000

BASE MAP SOURCE: FOX, SIMS, BARTOW & HELLEY, 1973

ENGEO INCORPORATED
EXCELLENT SERVICE SINCE 1971

PRELIMINARY GEOLOGIC MAP ANDERSON 128 PROPERTY ROHNERT PARK, CALIFORNIA	PROJECT NO.: 5716.1.006.01		FIGURE NO. 2
	DATE: APRIL 2004		
	DRAWN BY: DLB	CHECKED BY: JT	

ORIGINAL FIGURE PRINTED IN COLOR

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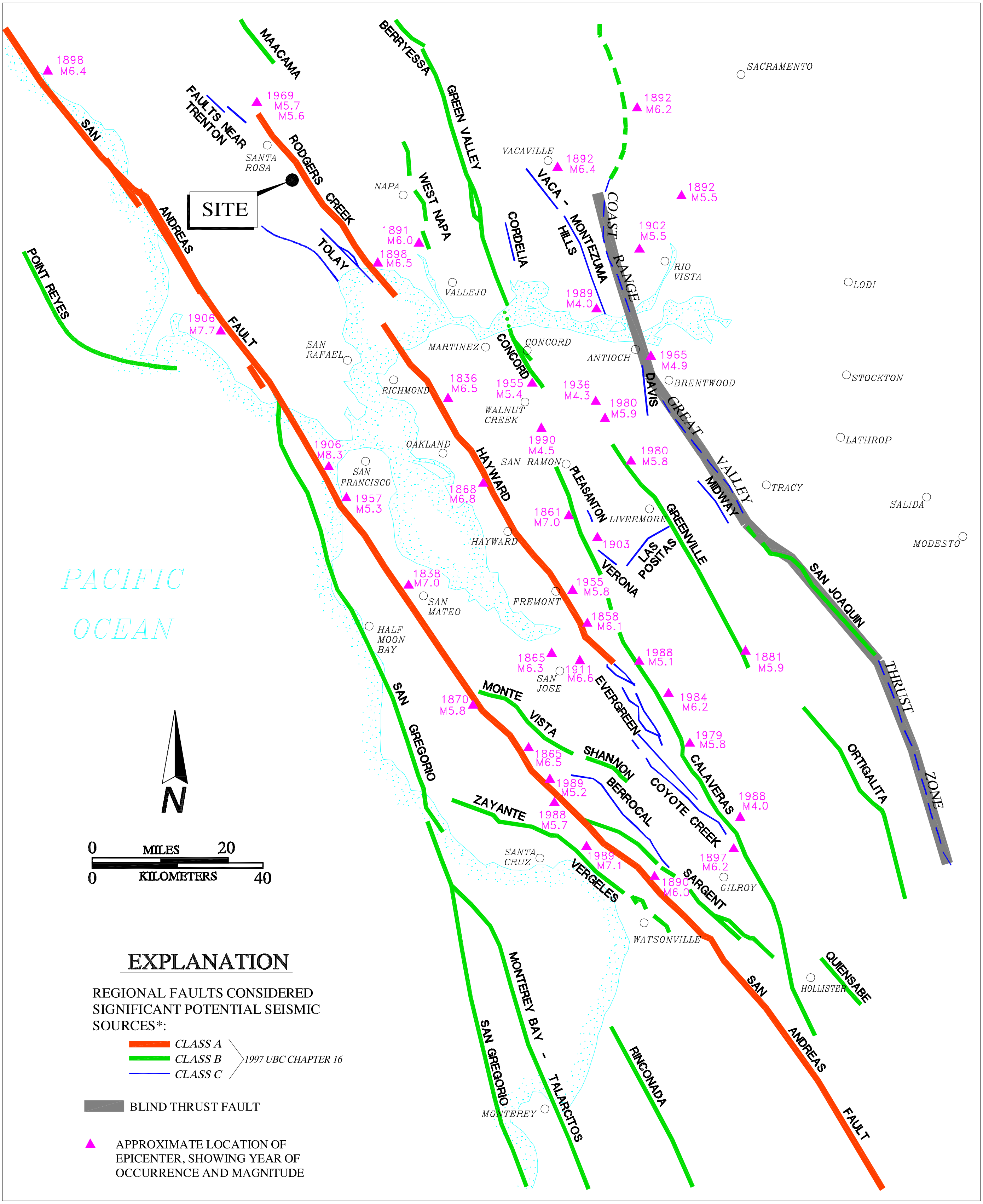

*BASED ON USGS OPEN FILE 96-706

ENGEO INCORPORATED
EXCELLENT SERVICE SINCE 1971

REGIONAL FAULTING AND SEISMICITY
ANDERSON 128 PROPERTY
ROHNERT PARK, CALIFORNIA

PROJECT NO.: 5716.1.007.01	FIGURE NO. 3
DATE: APRIL 2005	
DRAWN BY: CLL	CHECKED BY: JT

ORIGINAL FIGURE PRINTED IN COLOR

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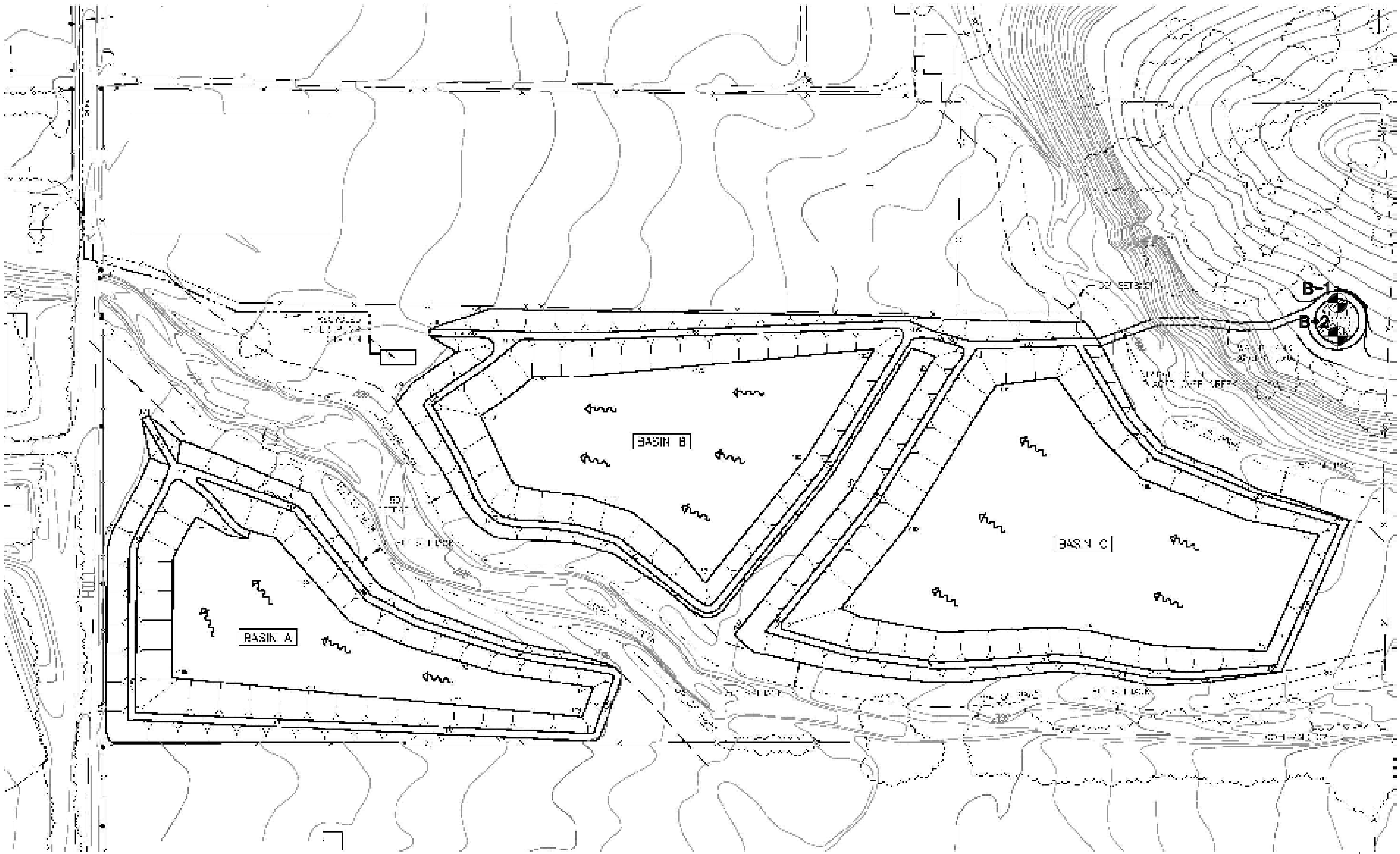

EXPLANATION

B-2 APPROXIMATE LOCATION OF BORING

BASE MAP SOURCE: UNKNOWN

ENGEO INCORPORATED
EXCELLENT SERVICE SINCE 1971

SITE PLAN
ANDERSON 128 PROPERTY
ROHNERT PARK, CALIFORNIA

PROJECT NO.: 5716.1.007.01		FIGURE NO. 4
DATE: APRIL 2005		
DRAWN BY: CLL	CHECKED BY: JT	

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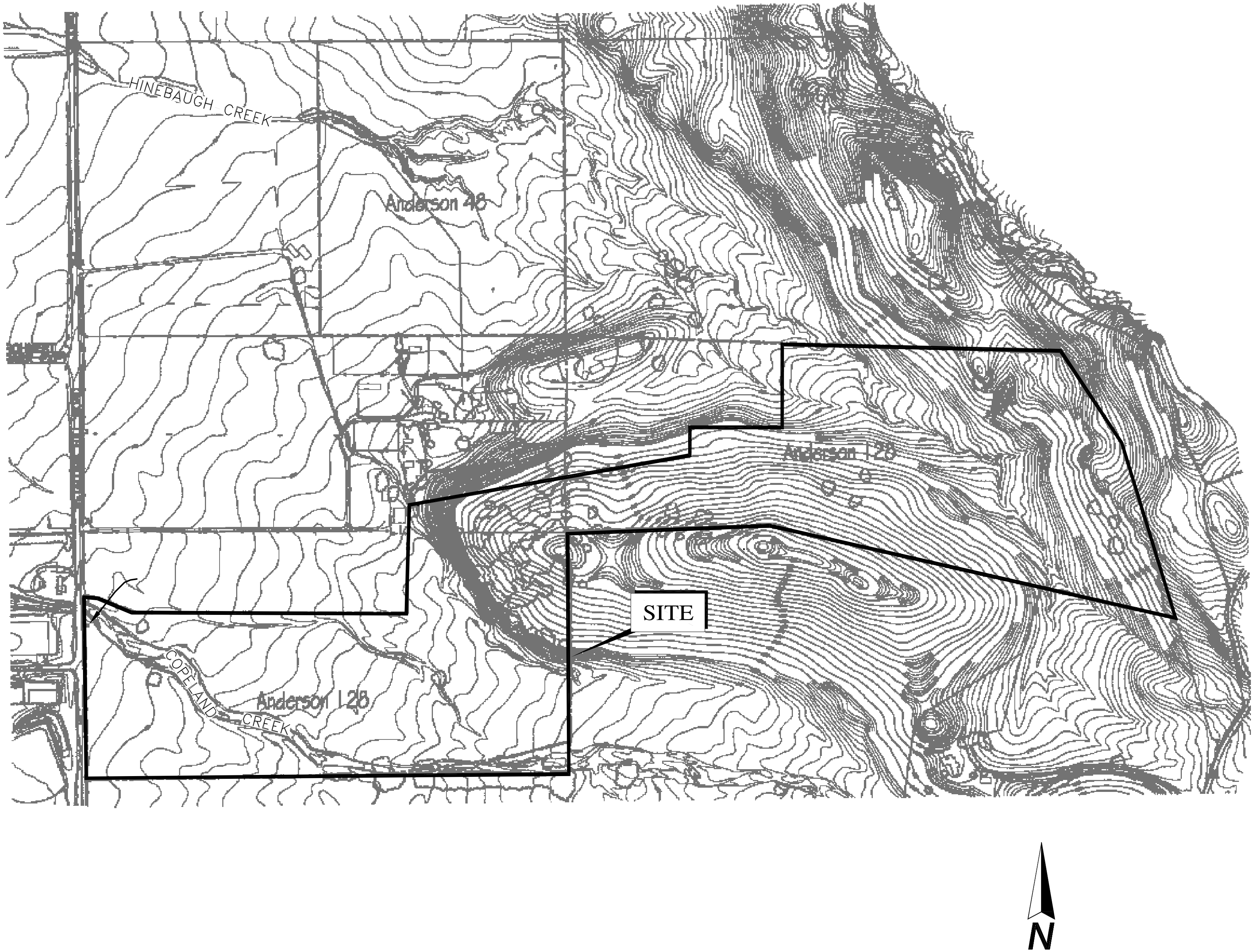

BASE MAP SOURCE: UNKNOWN

ENGEO INCORPORATED
EXCELLENT SERVICE SINCE 1971

SITE TOPOGRAPHIC MAP ANDERSON 128 PROPERTY ROHNERT PARK, CALIFORNIA	PROJECT NO.: 5716.1.007.01 DATE: APRIL 2005 DRAWN BY: CLL CHECKED BY: JT	FIGURE NO. 5

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APPENDIX B

Boring Logs

ENGEO INCORPORATED

LOG OF BORING B-1

GEX WATER TANK
ANDERSON 128 PROPERTY
ROHNERT PARK, CALIFORNIA
5716.1.007.01

DATE DRILLED: MARCH 10, 2005
HOLE DEPTH (FT): 39.5 ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (FT-MSL): 275 ft.
LOGGED / REVIEWED BY: KEITH NOWELL/JTT
DRILLING CONTRACTOR: GREGG
DRILLING METHOD: ROTARY WASH CORE

Depth in Feet	Depth in Meters	DESCRIPTION	CORELOG	Water Level	RUN NUMBER	CUT	% RECOVERY	RQD %
0	0	NO RECOVERY						
		ANDESITE - dark reddish brown to dark grey, friable to moderately strong, closely fractured, highly weathered.			1	4.5	56	0
	1	-fracture 45 degrees -fracture 45 degrees -fracture 30 degrees						
5		WELDED TUFF - dark brown, weak to friable matrix with inclusions of basaltic and tuffaceous fragments up to 1.5" maximum dimension.						
	2	NO RECOVERY			2	5	28	0
		WELDED TUFF - dark brown, weak to friable matrix with inclusions of basaltic and tuffaceous fragments up to 1.5" maximum dimension.						
10	3	NO RECOVERY						
		SANDY WELDED TUFF - dark brown, weak to friable matrix with inclusions of basaltic and tuffaceous fragments up to 1.5" maximum dimension.			3	5	64	0
	4	-fracture 30 degrees -fracture 45 degrees fracture 45 degrees -weak to friable						
15		NO RECOVERY						
	5	medium-WELDED TUFF - dark brown, weak to friable matrix with inclusions of basaltic and tuffaceous fragments up to 1.5" maximum dimension. -fracture 45 degrees			4	5	78	20
		ANDESITE - dark grey, moderately strong to strong, moderately weathered. -fracture 10 degrees -fracture 35 degrees						
20	6	TUFF - black, lithic fragments, weak to friable, moderately to highly weathered.						
		ANDESITE - dark grey, closely to moderately fractured, moderately strong to strong, moderately weathered. -fracture 45 degrees fracture 45 degrees			5	5	100	44
	7	fracture 45 degrees						
25		NO RECOVERY						
	8	ANDESITE - dark grey, closely to moderately fractured, moderately strong to strong, moderately weathered. -fracture 45 degrees -fractures 30 and 60 degrees -fracture 30 degrees -fracture 45 degrees -fracture 75 degrees			6	5	96	54
	9	-fracture 45 degrees			7	5	96	36
30								

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LOG OF BORING B-1

ENGEO INCORPORATED

Depth in Feet	Depth in Meters	DESCRIPTION	CORELOG	Water Level	RUN NUMBER	CUT	% RECOVERY	RQD %
30	10	ANDESITE - dark grey, closely to moderately fractured, moderately strong to strong, moderately weathered. fracture 20 degrees fracture 20 degrees fracture 20 degrees fracture 45 degrees fracture 10 degrees fracture 45 degrees closely to widely fractured			7	5	96	36
35	11	ANDESITE - reddish brown to dark grey, closely to moderately fractured, very strong, slightly weathered.			8	5	98	36
		TUFF BRECCIA - light brown to gray, friable, crushed to closely fractured, moderately weathered.						
	12	ANDESITE - reddish brown to dark grey, closely to moderately fractured, very strong, slightly weathered.						
40		Bottom of Boring at approximately 39.5 feet. No groundwater encountered.						
45	13, 14							
50	15							
55	16, 17							
60	18, 19							

ENGEO INCORPORATED

LOG OF BORING B-2

GEX WATER TANK
ANDERSON 128 PROPERTY
ROHNERT PARK, CALIFORNIA
5716.1.007.01

DATE DRILLED: MARCH 11, 2005
HOLE DEPTH (FT): 39.5 ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (FT-MSL): 260 ft.

LOGGED / REVIEWED BY: KEITH NOWELL/JTT
DRILLING CONTRACTOR: GREGG
DRILLING METHOD: ROTARY WASH CORE

Depth in Feet	Depth in Meters	DESCRIPTION	CORELOG	Water Level	RUN NUMBER	CUT	% RECOVERY	RQD %
0	0	NO RECOVERY						
	1	ANDESITE - black to reddish brown, weak to moderately strong, crushed to closely fractured, moderate to highly weathered.			1	4.5	62	8
5		NO RECOVERY						
	2	TUFF - dark grey, friable, very closely fractured, moderate to highly weathered.			2	5	82	14
		ANDESITE - reddish brown to dark grey, strong, moderately to closely fractured, moderately weathered. fracture 45 degrees fracture 30 degrees fracture 60 degrees fractures 45 degrees						
10	3	NO RECOVERY						
		SILTY ANDESITE - reddish brown to dark grey, strong, moderately to closely fractured, moderately weathered. fractures 45 degrees fracture 70 degrees			3	5	98	12
	4	SILT ANDESITE - black with thin pale brown tuffaceous layers, friable.						
15		NO RECOVERY						
	5	TUFF - pale brown to light red, weak (plastic), highly weathered.			4	4.8	60	0
		ANDESITE - dark grey, strong, closely fractured, moderately weathered.						
		LAPILLI TUFF - friable, crushed to closely fractured, highly to moderately weathered.						
20	6	ANDESITE -grey to dark grey, strong, crushed to closely fractured, moderately weathered.			5	3	97	0
	7	TUFF - pale brown to reddish brown, crushed to closely fractured, moderately to highly weathered.			6	2.2	100	0
		ANDESITE - reddish brown, strong, closely fractured.						
25		NO RECOVERY						
	8	LAPILLI TUFF - gray, reddish gray, pale brown, friable, crushed to closely fractured, highly to moderately weathered.			7	5	94	0
30	9	NO RECOVERY			8	5	46	0

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ENGEO INCORPORATED

LOG OF BORING B-2

Depth in Feet	Depth in Meters	DESCRIPTION	CORELOG	Water Level	RUN NUMBER	CUT	% RECOVERY	RQD %
30								
	10	RHYOLITE - pale brown and dark grey, friable to moderately strong, crushed to closely fractured, moderately to highly weathered.			8	5	46	0
35		NO RECOVERY						
	11				9	5	38	0
		RHYOLITE - pale brown and dark grey, friable to moderately strong, crushed to closely fractured, moderately to highly weathered.						
	12	TUFF - grey to white, friable, crushed to closely fractured, lithic fragments, highly weathered.						
40		Bottom of Boring at approximately 39.5 feet. No groundwater encountered.						
	13							
45	14							
	15							
50	16							
55	17							
	18							
60	19							

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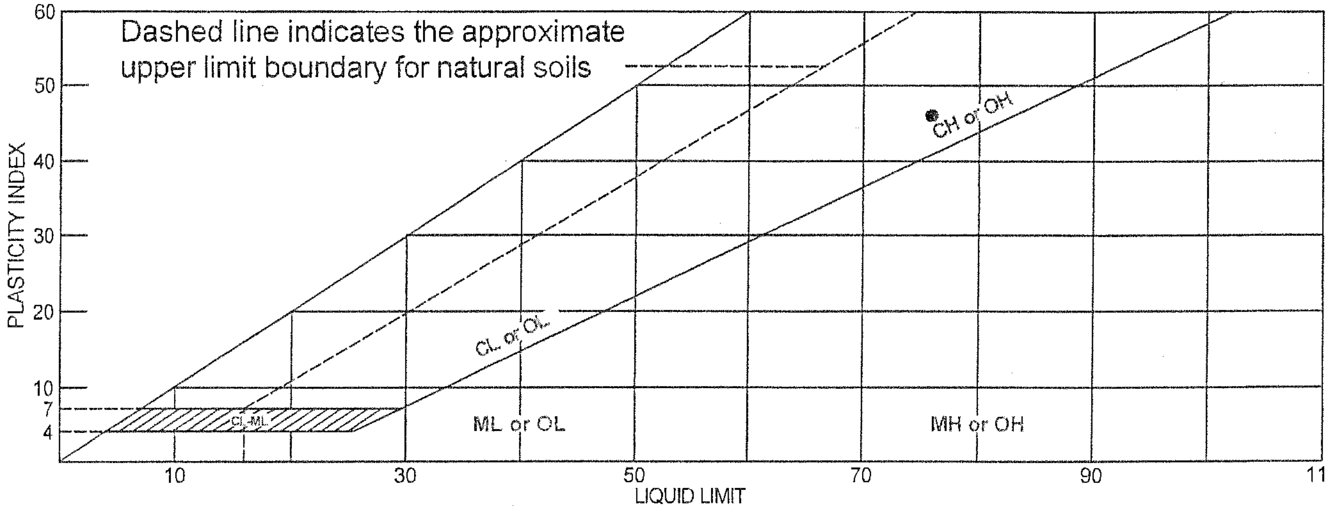
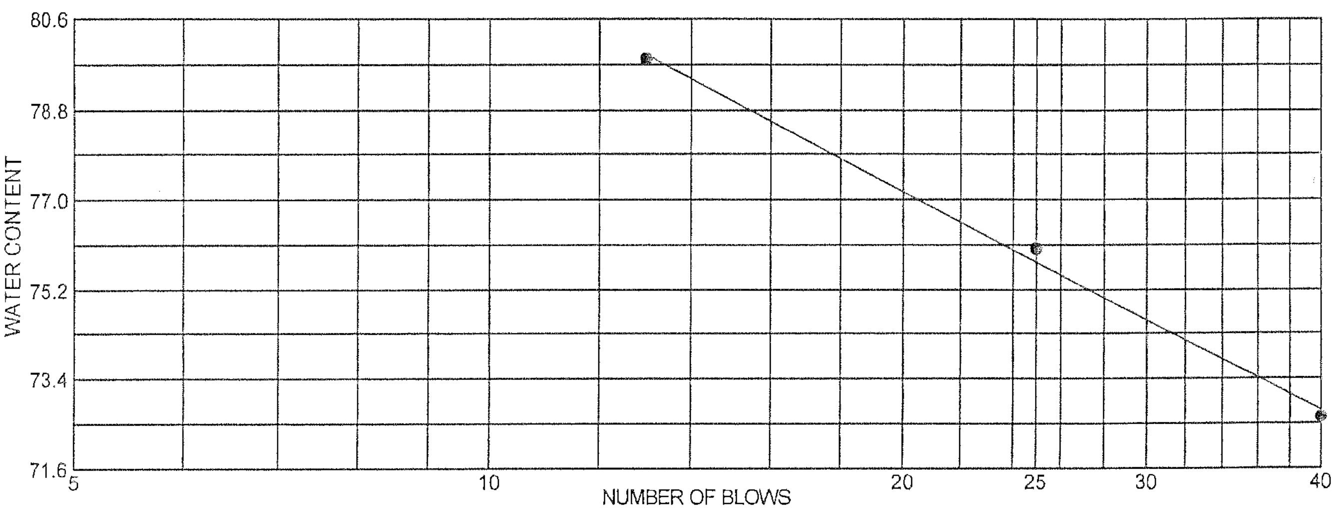
APPENDIX C

Laboratory Test Results

LIQUID AND PLASTIC LIMITS TEST REPORT





	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Reddish brown sandy tuffaceous Clay	76	30	46			CH

Project No. 5716.1.007.01 **Client:**

Project: Rohnert Park

● **Source:** PI/GRN-SIZE **Sample No.:** B-2

Remarks:

● (B-2 @ 17.0 - 17.25 ft.)

ENGEO INCORPORATED

GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS MATERIALS TESTING

Plate

APPENDIX D

Contract Guide Specifications

5716.1.007.01
April 22, 2005

GUIDE CONTRACT SPECIFICATIONS

PART I - EARTHWORK

PREFACE

These specifications are intended as a guide for the earthwork performed at the subject development project. If there is a conflict between these specifications (including the recommendations of the geotechnical report) and agency or code requirements, it should be brought to the attention of ENGEO and Owner prior to contract bidding.

PART 1 - GENERAL

1.01 WORK COVERED

A. Grading, excavating, filling and backfilling, including trenching and backfilling for utilities as necessary to complete the Project as indicated on the Drawings.

B. Subsurface drainage as indicated on the Drawings.

1.02 CODES AND STANDARDS

A. Excavating, trenching, filling, backfilling, and grading work shall meet the applicable requirements of the Uniform Building Code and the standards and ordinances of state and local governing authorities.

1.03 SUBSURFACE SOIL CONDITIONS

A. The Owners' Geotechnical Exploration report is available for inspection by bidder or Contractor. The Contractor shall refer to the findings and recommendations of the Geotechnical Exploration report in planning and executing his work.

1.04 DEFINITIONS

A. Fill: All soil, rock, or soil-rock materials placed to raise the grades of the site or to backfill excavations.

B. Backfill: All soil, rock or soil-rock material used to fill excavations and trenches.

C. On-Site Material: Soil and/or rock material which is obtained from the site.

D. Imported Material: Soil and/or rock material which is brought to the site from off-site areas.

E. Select Material: On-site and/or imported material which is approved by ENGEO as a specific-purpose fill.

F. Engineered Fill: Fill upon which ENGEO has made sufficient observations and tests to confirm that the fill has been placed and compacted in accordance with specifications and requirements.

G. Degree of Compaction or Relative Compaction: The ratio, expressed as a percentage, of the in-place dry density of the fill and backfill material as compacted in the field to the maximum dry density of the same material as determined by ASTM D-1557 or California 216 compaction test method.

H. Optimum Moisture: Water content, percentage by dry weight, corresponding to the maximum dry density as determined by ASTM D-1557.

I. ENGEO: The project geotechnical engineering consulting firm, its employees or its designated representatives.

J. Drawings: All documents, approved for construction, which describe the Work.

1.05 OBSERVATION AND TESTING

A. All site preparation, cutting and shaping, excavating, filling, and backfilling shall be carried out under the observation of ENGEO, employed and paid for by the Owners. ENGEO will perform appropriate field and laboratory tests to evaluate the suitability of fill material, the proper moisture content for compaction, and the degree of compaction achieved. Any fill that does not meet the specification requirements shall be removed and/or reworked until the requirements are satisfied.

B. Cutting and shaping, excavating, conditioning, filling, and compacting procedures require approval of ENGEO as they are performed. Any work found unsatisfactory or any work disturbed by subsequent operations before approval is granted shall be corrected in an approved manner as recommended by ENGEO.

C. Tests for compaction will be made in accordance with test procedures outlined in ASTM D-1557, as applicable. Field testing of soils or compacted fill shall conform to the applicable requirements of ASTM D-2922.

D. All authorized observation and testing will be paid for by the Owners.

1.06 SITE CONDITIONS

A. Excavating, filling, backfilling, and grading work shall not be performed during unfavorable weather conditions. When the work is interrupted by rain, excavating, filling, backfilling, and grading work shall not be resumed until the site and soil conditions are suitable.

B. Contractor shall take the necessary measures to prevent erosion of freshly filled, backfilled, and graded areas until such time as permanent drainage and erosion control measures have been installed.

PART 2 - PRODUCTS

2.01 GENERAL

A. Contractor shall furnish all materials, tools, equipment, facilities, and services as required for performing the required excavating, filling, backfilling, and grading work, and trenching and backfilling for utilities.

2.02 SOIL MATERIALS

A. Fill

1. Material to be used for engineered fill and backfill shall be free from organic matter and other deleterious substances, and of such quality that it will compact thoroughly without excessive voids when watered and rolled. Excavated on-site material will be considered suitable for engineered fill and backfill if it contains no more than 3 percent organic matter, is free of debris and other deleterious substances and conforms to the requirements specified above. Rocks of maximum dimension in excess of two-thirds of the lift thickness shall be removed from any fill material to the satisfaction of ENGEO.

2. Excavated earth material which is suitable for engineered fill or backfill, as determined by ENGEO, shall be conditioned for reuse and properly stockpiled as required for later filling and backfilling operations. Conditioning shall consist of

spreading material in layers not to exceed 8 inches and raking free of debris and rubble. Rocks and aggregate exceeding the allowed largest dimension, and deleterious material shall be removed from the site and disposed off site in a legal manner.

3. ENGEO shall be notified at least 48 hours prior to the start of filling and backfilling operations so that it may evaluate samples of the material intended for use as fill and backfill. All materials to be used for filling and backfilling require the approval of ENGEO.

B. Import Material: Where conditions require the importation of fill material, the material shall be an inert, nonexpansive soil or soil-rock material free of organic matter and meeting the following requirements unless otherwise approved by ENGEO.

Gradation (ASTM D-421):	Sieve Size	Percent Passing
	2-inch	100
	#200	15 - 70
Plasticity (ASTM D-4318):	Liquid Limit	Plasticity Index
	< 30	< 12
Swell Potential (ASTM D-4546B): (at optimum moisture)	Percent Heave	Swell Pressure
	< 2 percent	< 300 psf
Resistance Value (ASTM D-2844):	Minimum 25	
Organic Content (ASTM D-2974):	Less than 2 percent	

A sample of the proposed import material should be submitted to ENGEO for evaluation prior to delivery at the site.

2.03 SAND

A. Sand for sand cushion under slabs and for bedding of pipe in utility trenches shall be a clean and graded, washed sand, all passing a No. 4 U. S. Standard Sieve, and generally conforming to ASTM C33 for fine aggregate.

2.04 AGGREGATE DRAINAGE FILL

A. Aggregate drainage fill under concrete slabs and paving shall consist of broken stone, crushed or uncrushed gravel, clean quarry waste, or a combination thereof. The aggregate shall be free from fines, vegetable matter, loam, volcanic tuff, and other deleterious substances. It shall be of such quality that the absorption of water in a saturated surface dry condition does not exceed 3 percent of the oven dry weight of the samples.

B. Aggregate drainage fill shall be of such size that the percentage composition by dry weight as determined by laboratory sieves (U. S. Series) will conform to the following grading:

Sieve Size	Percentage Passing Sieve
1½-inches	100
1-inch	90 - 100
#4	0 - 5

2.05 SUBDRAINS

A. Perforated subdrain pipe of the required diameter shall be installed as shown on the drawings. The pipe(s) shall also conform to these specifications unless otherwise specified by ENGEO in the field.

Subdrain pipe shall be manufactured in accordance with one of the following requirements:

<u>Design depths less than 30 feet</u>

- Perforated ABS Solid Wall SDR 35 (ASTM D-2751)
- Perforated PVC Solid Wall SDR 35 (ASTM D-3034)
- Perforated PVC A-2000 (ASTM F949)
- Perforated Corrugated HDPE double-wall (AASHTO M-252 or M-294, Caltrans Type S, 50 psi minimum stiffness)

<u>Design depths less than 50 feet</u>

- Perforated PVC SDR 23.5 Solid Wall (ASTM D-3034)
- Perforated Sch. 40 PVC Solid Wall (ASTM-1785)
- Perforated ABS SDR 23.5 Solid Wall (ASTM D-2751)
- Perforated ABS DWV/Sch. 40 (ASTM D-2661 and D-1527)

- Perforated Corrugated HDPE double-wall (AASHTO M-252 or M-294, Caltrans Type S, 70 psi minimum stiffness)

Design depths less than 70 feet

- Perforated ABS Solid Wall SDR 15.3 (ASTM D-2751)
- Perforated Sch. 80 PVC (ASTM D-1785)
- Perforated Corrugated Aluminum (ASTM B-745)

B. Permeable Material (Class 2): Class 2 permeable material for filling trenches under, around, and over subdrains, behind building and retaining walls, and for pervious blankets shall consist of clean, coarse sand and gravel or crushed stone, conforming to the following grading requirements:

Sieve Size	Percentage Passing Sieve
1-inch	100
¾-inch	90 - 100
$^{3}/8$-inch	40 - 100
#4	25 - 40
#8	18 - 33
#30	5 - 15
#50	0 - 7
#200	0 - 3

C. Filter Fabric: All filter fabric shall meet the following Minimum Average Roll Values unless otherwise specified by ENGEO.

Grab Strength (ASTM D-4632)..180 lbs
Mass per Unit Area (ASTM D-4751).................................6 oz/yd^2
Apparent Opening Size (ASTM D-4751)...........................70-100 U.S. Std. Sieve
Flow Rate (ASTM D-4491)..80 gal/min/ft^2
Puncture Strength (ASTM D-4833)...................................80 lbs

D. Vapor Barrier: Vapor barriers shall consist of PVC, LDPE or HDPE impermeable sheeting at least 10 mils thick.

2.06 PERMEABLE MATERIAL (Class 1; Type A)

A. Class 1 permeable material to be used in conjunction with filter fabric for backfilling of subdrain excavations shall conform to the following grading requirements:

Sieve Size	Percentage Passing Sieve
¾-inch	100
½-inch	95 - 100
$^{3}/8$-inch	70 - 100
#4	0 - 55
#8	0 - 10
#200	0 - 3

PART 3 - EXECUTION

3.01 STAKING AND GRADES

A. Contractor shall lay out all his work, establish all necessary markers, bench marks, grading stakes, and other stakes as required to achieve design grades.

3.02 EXISTING UTILITIES

A. Contractor shall verify the location and depth (elevation) of all existing utilities and services before performing any excavation work.

3.03 EXCAVATION

A. Contractor shall perform excavating as indicated and required for concrete footings, drilled piers, foundations, floor slabs, concrete walks, and site leveling and grading, and provide shoring, bracing, underpinning, cribbing, pumping, and planking as required. The bottoms of excavations shall be firm undisturbed earth, clean and free from loose material, debris, and foreign matter.

B. Excavations shall be kept free from water at all times. Adequate dewatering equipment shall be maintained at the site to handle emergency situations until concrete or backfill is placed.

C. Unauthorized excavations for footings shall be filled with concrete to required elevations, unless other methods of filling are authorized by ENGEO.

D. Excavated earth material which is suitable for engineered fill or backfill, as determined by ENGEO, shall be conditioned for reuse and properly stockpiled for later filling and backfilling operations as specified under Section 2.02, "Soil Materials."

E. Abandoned sewers, piping, and other utilities encountered during excavating shall be removed and the resulting excavations shall be backfilled with engineered fill as required by ENGEO.

F. Any active utility lines encountered shall be reported immediately to the Owner's Representative and authorities involved. The Owner and proper authorities shall be permitted free access to take the measures deemed necessary to repair, relocate, or remove the obstruction as determined by the responsible authority or Owner's Representative.

3.04 SUBGRADE PREPARATION

A. All brush and other rubbish, as well as trees and root systems not marked for saving, shall be removed from the site and legally disposed of.

B. Any existing structures, foundations, underground storage tanks, or debris must be removed from the site prior to any building, grading, or fill operations. Septic tanks, including all drain fields and other lines, if encountered, must be totally removed. The resulting depressions shall be properly prepared and filled to the satisfaction of ENGEO.

C. Vegetation and organic topsoil shall be removed from the surface upon which the fill is to be placed and either removed and legally disposed of or stockpiled for later use in approved landscape areas. The surface shall then be scarified to a depth of at least eight inches until the surface is free from ruts, hummocks, or other uneven features which would tend to prevent uniform compaction by the equipment to be used.

D. After the foundation for the fill has been cleared and scarified, it shall be made uniform and free from large clods. The proper moisture content must be obtained by adding water or aerating. The foundation for the fill shall be compacted at the proper moisture content to a relative compaction as specified herein.

3.05 ENGINEERED FILL

A. Select Material: Fill material shall be "Select" or "Imported Material" as previously specified.

B. Placing and Compacting: Engineered fill shall be constructed by approved and accepted methods. Fill material shall be spread in uniform lifts not exceeding 8 inches in uncompacted thickness. Each layer shall be spread evenly, and thoroughly blade-mixed to obtain uniformity of material. Fill material which does not contain sufficient moisture as specified by ENGEO shall be sprinkled with water; if it contains excess moisture it shall be aerated or blended with drier material to achieve the proper water content. Select material and water shall then be thoroughly mixed before being compacted.

C. Unless otherwise specified in the Geotechnical Exploration report, each layer of spread select material shall be compacted to at least 90 percent relative compaction at a moisture content of at least three percent above the optimum moisture content. Minimum compaction in all keyways shall be a minimum of 95 percent with a minimum moisture content of at least 1 percent above optimum.

D. Unless otherwise specified in the Geotechnical Exploration report or otherwise required by the local authorities the upper 6 inches of engineered fill in areas to receive pavement shall be compacted to at least 95 percent relative compaction.

E. Testing and Observation of Fill: The work shall consist of field observation and testing to determine that each layer has been compacted to the required density and that the required moisture is being obtained. Any layer or portion of a layer that does not attain the compaction required shall be reworked until the required density is obtained.

F. Compaction: Compaction shall be by sheepsfoot rollers, multiple-wheel steel or pneumatic-tired rollers or other types of acceptable compaction equipment. Rollers shall be of such design that they will be able to compact the fill to the specified compaction. Rolling shall be accomplished while the fill material is within the specified moisture content range. Rolling of each layer must be continuous so that the required compaction may be obtained uniformly throughout each layer.

G. Fill slopes shall be constructed by overfilling the design slopes and later cutting back the slopes to the design grades. No loose soil will be permitted on the faces of the finished slopes.

H. Strippings and topsoil shall be stockpiled as approved by Owner, then placed in accordance with ENGEO's recommendations to a minimum thickness of 6 inches and a maximum thickness of 12 inches over exposed open space cut slopes which are 3:1 or flatter, and track walked to the satisfaction of ENGEO.

I. Final Prepared Subgrade: Finish blading and smoothing shall be performed as necessary to produce the required density, with a uniform surface, smooth and true to grade.

3.06 BACKFILLING

A. Backfill shall not be placed against footings, building walls, or other structures until approved by ENGEO.

B. Backfill material shall be Select Material as specified for engineered fill.

C. Backfill shall be placed in 6-inch layers, leveled, rammed, and tamped in place. Each layer shall be compacted with suitable compaction equipment to 90 percent relative compaction at a moisture content of at least 3 percent above optimum.

3.07 TRENCHING AND BACKFILLING FOR UTILITIES

A. Trenching:

1. Trenching shall include the removal of material and obstructions, the installation and removal of sheeting and bracing and the control of water as necessary to provide the required utilities and services.

2. Trenches shall be excavated to the lines, grades, and dimensions indicated on the Drawings. Maximum allowable trench width shall be the outside diameter of the pipe plus 24 inches, inclusive of any trench bracing.

3. When the trench bottom is a soft or unstable material as determined by ENGEO, it shall be made firm and solid by removing said unstable material to a sufficient depth and replacing it with on-site material compacted to 90 percent minimum relative compaction.

4. Where water is encountered in the trench, the contractor must provide materials necessary to drain the water and stabilize the bed.

B. Backfilling:

1. Trenches must be backfilled within 2 days of excavation to minimize desiccation.

2. Bedding material shall be sand and shall not extend more than 6 inches above any utility lines.

3. Backfill material shall be select material.

4. Trenches shall be backfilled as indicated or required and compacted with suitable equipment to 90 percent minimum relative compaction at the required moisture content.

3.08 SUBDRAINS

A. Trenches for subdrain pipe shall be excavated to a minimum width equal to the outside diameter of the pipe plus at least 12 inches and to a depth of approximately 2 inches below the grade established for the invert of the pipe, or as indicated on the Drawings.

B. The space below the pipe invert shall be filled with a layer of Class 2 permeable material, upon which the pipe shall be laid with perforations down. Sections shall be joined as recommended by the pipe manufacturer.

C. Rocks, bricks, broken concrete, or other hard material shall not be used to give intermediate support to pipes. Large stones or other hard objects shall not be left in contact with the pipes.

D. Excavations for subdrains shall be filled as required to fill voids and prevent settlement without damaging the subdrain pipe. Alternatively, excavations for subdrains may be filled with Class 1 permeable material (as defined in Section 2.06) wrapped in Filter Fabric (as defined in Section 2.05).

3.09 AGGREGATE DRAINAGE FILL

A. ENGEO shall approve finished subgrades before aggregate drainage fill is installed.

B. Pipes, drains, conduits, and any other mechanical or electrical installations shall be in place before any aggregate drainage fill is placed. Backfill at walls to elevation of drainage fill shall be in place and compacted.

C. Aggregate drainage fill under slabs and concrete paving shall be the minimum uniform thickness after compaction of dimensions indicated on Drawings. Where not indicated, minimum thickness after compaction shall be 4 inches.

D. Aggregate drainage fill shall be rolled to form a well-compacted bed.

E. The finished aggregate drainage fill must be observed and approved by ENGEO before proceeding with any subsequent construction over the compacted base or fill.

3.10 SAND CUSHION

A. A sand cushion shall be placed over the vapor barrier membrane under concrete slabs on grade. Sand cushion shall be placed in uniform thickness as indicated on the Drawings. Where not indicated, the thickness shall be 2 inches.

3.11 FINISH GRADING

A. All areas must be finish graded to elevations and grades indicated on the Drawings. In areas to receive topsoil and landscape planting, finish grading shall be performed to a uniform 6 inches below the grades and elevations indicated on the Drawings, and brought to final grade with topsoil.

3.12 DISPOSAL OF WASTE MATERIALS

A. Excess earth materials and debris shall be removed from the site and disposed of in a legal manner. Location of dump site and length of haul are th

S-20253

S-20253

A CULTURAL RESOURCE SURVEY OF THE ANDERSON RANCH PROPERTY 6500 PETALUMA HILL ROAD SONOMA COUNTY, CALIFORNIA

Prepared by:

Janine M. Loyd

Janine M. Loyd, B.A.
and
Thomas M. Origer, M.A.
SOPA Certified

Tom Origer & Associates
Post Office Box 1531
Rohnert Park, California 94927
(707) 588-9404

Prepared for:

Quaker Hill Development Corporation
Post Office Box 2240
Healdsburg, California 95448

December 1997

SUMMARY

The cultural resources study described herein was completed at the request of Craig Harrington, Quaker Hill Development Corporation, representing the land owner James Anderson. Mr. Anderson is considering using a portion of the study area to create an artificial wetland area to mitigate impacts created by a proposed nearby project.

The study included archival research at the Northwest Information Center (NWIC), Sonoma State University, and field survey of the study area. Prefield research revealed that the farm complex has had a preliminary evaluation of its eligibility for inclusion on the National Register of Historic Places. No previously recorded archaeological sites are present within the study area; however, most of the study area had not been surveyed before.

No archaeological sites were found within the study area during field survey. However, widely scattered prehistoric materials were found on the property, and historic resources included segments of historic era stone fences and a ranch complex. All original records for this study are on file at the offices of Tom Origer & Associates under file number 97-50S.

INTRODUCTION

Craig Harrington, Quaker Hill Development Corporation, representing the land owner James Anderson, requested a cultural resources survey for the Anderson Ranch, 6500 Petaluma Hill Road, Sonoma County, California. Mr. Anderson is considering creating an artificial wetland within a portion of the study area to mitigate adverse impacts from development of a nearby property.

This study was designed to meet requirements of the California Environmental Quality Act (CEQA) and its Guidelines (cf., Appendix K) and the National Historic Preservation Act (Section 106). The goals of this study were to: 1) identify all cultural resources within the project area; 2) offer a preliminary evaluation of the significance of identified cultural resources; 3) determine resource vulnerability to project activities; and 4) offer recommendations designed to protect cultural resource values, as warranted.

STUDY AREA LOCATION AND DESCRIPTION

The study area is situated on the east side of Petaluma Hill Road, as shown on the Cotati 7.5' USGS topographic quadrangle (Map 1). The roughly 262-acre study area generally consists of level to gently sloping terrain, with a large, steep hill rising above the east-central portion. Copeland Creek, a perennial stream, flows across the southern portion of the property. Hinebaugh Creek, a seasonal water-course, bisects the northern portion and the extreme eastern portion of the study area.

Three soil series are represented within the study area. The plains on the west, north, and south are dominated by Clear Lake series soils which consist of clays formed under poorly drained conditions. In their natural state these soils support annual grasses and forbs. The hill areas in the eastern-central portion of the study area contain Goulding and Toomes series soils which are well-drained soils underlain by andesitic basalt. These soils would naturally support grasses and forbs with scattered small brush and oak trees (Miller 1972). Historically all of these soils types have been used for pasture, with the Clear Lake soils occasionally used for growing oat-vetch hay.

STUDY PROCEDURES

This study was conducted in three stages including archival research, field survey of the project area, and data analysis and report preparation.

Archival research included examination of the files of Tom Origer & Associates, and pertinent materials housed at the Northwest Information Center (NWIC). The NWIC serves as a regional branch of the Historical Resources File System, and under the terms of its contract with the Office of Historic Preservation (OHP), the NWIC maintains archaeological site records, historic resource inventory forms, survey reports, base maps, and other documents concerning historic and prehistoric cultural resources within the Northwestern and west-central counties of California. Documents examined during the archival phase of the study are included in the "Materials Consulted" section of this report.

A search of the materials available at the NWIC (NWIC #97-505) found that there were no recorded archaeological sites present, however only a small portion of the study area, approximately ten acres, had been subjected to cultural resources survey (Loyd 1992). In addition, the ranch complex had received a preliminary evaluation of its eligibility for inclusion on the National Register of Historic Places (Meyer 1994). Studies have been completed nearby and prehistoric archaeological sites have been recorded in the general vicinity of, and in environmental settings similar to, the study area (Roop 1978, Flynn 1988). Consequently, the possibility existed that archaeological remains could be present.

The study area, at the time of European settlement, was at the northern edge of Coast Miwok territory which extended from the Pacific Ocean east to the divide between Sonoma and Napa valleys. Just north, the land was controlled by the Southern Pomo. The Coast Miwok were a hunting, fishing, and gathering culture whose subsistence strategy was based on an annual round. That is, people moved about the landscape to particular places to camp and to gather resources as they became available. A diversity of terrestrial, riverine, and marine plant and animal resources were exploited (Kelly 1978). The nearest ethnographically reported site is the village of *kotati*, which was located in the area of the present town of Cotati (Barrett 1908:311).

Early historic maps were examined to gain insight into the nature and extent of historical development of the study area and the general vicinity. Maps ranged from the Government Land Office Plat for the Cotate Rancho land grant (1857) to the topographic quadrangles issued by the United State Geological Survey.

Field inspection of the study area was conducted on December 3, 4, and 5, 1997. A mixed strategy field reconnaissance was employed. The previously surveyed part of the project area (Loyd 1992) was spot-checked to ensure that no cultural resources had been exposed in the intervening years. Areas with steep slopes were given cursory examination to determine if they contained flats that could contain resources, in addition, rock outcrops on the uplands were examined for petroglyphs. The level areas, the bulk of the study area, was subjected to intensive field reconnaissance as described by King, Moratto, and Leonard (1973). The area was thoroughly examined for evidence of prehistoric and historic resources. Prehistoric archaeological site indicators were anticipated given the environmental setting of the study area, and they were expected to include: chipped chert and obsidian tools and tool manufacture waste flakes; grinding implements such as mortars and pestles, and locally darkened soil containing the previously mentioned items as well as fire altered stone and dietary debris such as bone and shellfish fragments. Historic period site indicators in the form of ceramic, glass, and metal items were expected. Historical features which might be present include structural ruins, wells, and pits containing artifacts. Architectural features include standing structures.

Visibility of the soil surface was variable. In many areas dense grasses obscured the natural ground surface. A hoe was used to clear small areas for better visibility. In addition, exposed stream banks, animal trails, and areas of soil disturbed by rodent activity were examined for evidence of cultural resources.

STUDY RESULTS

Prehistoric materials and historic features were discovered within the study area, and descriptions of these finds are included below. Recommendations for treatment of the resources follow their description.

Prehistoric Materials

Widely scattered prehistoric cultural materials were found during the course of this study. These materials included two chipped stone tool fragments (a basalt chopper and obsidian projectile point) and chipped stone tool manufacturing debris, primarily obsidian flakes. Approximately two dozen items were dispersed across an area that measured about 300 meters east-west by 975 meters north-south. No concentrations of archaeological specimens were found.

The projectile point found within the study area was a corner-notched arrow tip made from Napa Valley obsidian. Corner-notched arrow points date to the late period, about AD 1500 to the beginning of sustained Euro-american settlement of the region (ca. 1830). It is concluded that the observed prehistoric archaeological materials represent evidence of a general use of the area by occupants of nearby sites. Two well-developed habitation sites have been recorded within one mile of the main ranch complex, on properties adjacent to the study area.

Historic Features

Three segments of historic era stone fences are present on the property. The fences are of field stone, constructed without mortar. While fences of this type are common throughout the county they are an important visual reminder of the county's history and development.

The ranch complex was felt to be eligible for inclusion to the National Register of Historic Places as a rural historic landscape based on the integrity of the structures and setting, and on its link "to historic trends that made significant contributions to the development of the community" (Meyer 1994). However, proposed development (e.g., wetland creation) by Mr. Anderson does not threaten the physical integrity of the ranch complex nor its setting.

RECOMMENDATIONS

Prehistoric Materials

No site-specific recommendations are offered with respect to the scattered archaeological materials, because they are interpreted to be "background" scatter. However, the presence of these widely dispersed materials is evidence of prehistoric use of the area, and there is the possibility that buried cultural resources exist within the study area. Therefore, we recommend that if any prehistoric materials are discovered during development of the study area, all work stop in the area where the materials were found until a qualified archaeologist can evaluate the finds.

Historic Features

Because the stone fence segments and ranch complex are situated away from the area planned for wet land development, no adverse impacts are anticipated. However, it is recommended that they be retained in their current state. If future development threatens their integrity, then they should be thoroughly documented, with a map of their locations, drawings, and photographs.

General Recommendation

Alluvial soils suggest that the possibility exists that buried cultural resources could be present. Site indicators have been described elsewhere in this report, and if any are uncovered during development of the study area, work should stop at the place of discovery until a qualified archaeologist evaluates them.

MATERIALS CONSULTED

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United States Geological Survey
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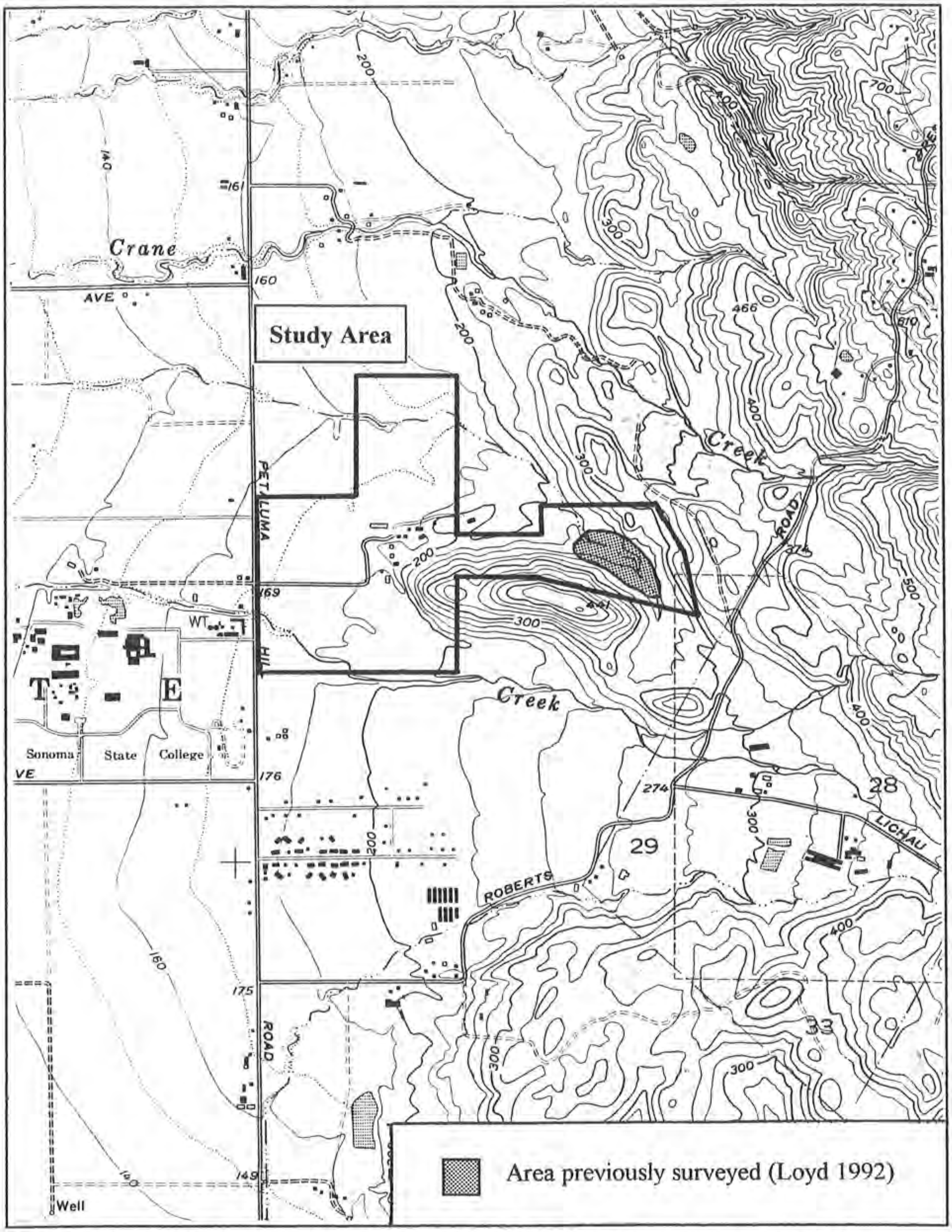

Map 1. Study area as shown on the Cotati 7.5' USGS topographic quadrangle.

APPENDIX D
Key Personnel Resumes

Adam Giacinto, MA, RPA

Archaeologist

Adam Giacinto is an archaeologist with more than 9 years' experience preparing cultural resource reports, site records, and managing archaeological survey, evaluation, and data recovery-level investigations. His research interests include prehistoric hunter-gatherer cultures and contemporary conceptions of heritage. His current research focuses on the social, historical, archaeological, and political mechanisms surrounding heritage values. He has gained practical experience in archaeological and ethnographic field methods while conducting research in the Southwest, Mexico, and Eastern Europe.

Mr. Giacinto brings specialized experience in cultural resources information processing gained while working at the South Coastal Information Center. He has worked as part of a nonprofit collaboration in designing and managing a large-scale, preservation-oriented, standardized database and conducting site and impact predictive Geographic Information Systems (GIS) analysis of the cultural resources landscape surrounding ancient Lake Cahuilla. He provides experience in ethnographic and applied anthropological methods gained in urban and rural settings, both in the United States and internationally.

Northern California Region

California High Speed Rail, Fresno, California. As Co-Principal Investigator, Mr. Giacinto supervised, implemented, and reported upon cultural inventory and compliance efforts under Section 106 of the NHPA, Federal Rail Authority, CEQA, and local Guidelines for Fresno to Bakersfield section. General responsibilities included day-to day scheduling oversight of Native American monitors, built environment specialists and archaeologists, management of cultural monitoring implementation and site treatment, client reporting, meetings and report preperation. Mr. Giacinto was the lead in multiple trainings.

Royal Gorge Trails Project, Donner Summit, Donner Land Trust, Placer County, California. As Principal archaeological investigator, Mr. Giacinto coordinated and completed a Northwest Central Center (NCIC) records search, Native American Heritage Commission (NAHC) and Native American correspondence, archaeological survey, and preparation of a technical report. An appropriate mitigation strategy meeting federal, state, and local standards was developed and provided to the County of Marin for this negative cultural inventory.

Emergency Helipad Project, Tahoe-Truckee Airport District, South Lake Tahoe, Placer County, California. As Principal archaeological investigator, Mr. Giacinto coordinated a Northwest Central Center (NCIC) records search, Native American Heritage Commission (NAHC) and Native American correspondence, archaeological survey, and preparation of a technical report. An appropriate mitigation strategy meeting federal, state, and local standards was developed and provided to the County of Marin for this negative cultural inventory.

MCWRA Interlake Spillway Project, Monterey and San Luis Obispo Counties, California. As Co-Principal archaeological investigator, Mr. Giacinto provided oversight and management of Inventory and

Evalutation. Project involved survey of Lake San Antonio and outflow at Lake Nacimiento, as well as evaluation of the Lake San Antonio historic-era dam.

Private Pier Project, City of Tiburon, Marin County, California. As Principal archaeological investigator, Mr. Giacinto coordinated a Northwest Information Center (NWIC) records search, Native American Heritage Commission (NAHC) and Native American correspondence, archaeological survey, and preparation of a technical report. An appropriate mitigation strategy was developed and provided to the County of Marin for this negative cultural inventory.

Water Tank Project, City of Rohnert Park, Sonoma County, California. As Principal archaeological investigator, Mr. Giacinto coordinated a Northwest Information Center (NWIC) records search, Native American Heritage Commission (NAHC) and Native American correspondence, archaeological survey, and preparation of a technical report. An appropriate mitigation strategy was developed and provided to the City of Ronert Park for this negative cultural inventory.

Auburn Recreation District Operations and Development Project, City of Auburn, California. As Principal archaeological investigator, Mr. Giacinto coordinated a North Central Information Center (NCIC) records search, Native American Heritage Commission (NAHC) and Native American information outreach, archaeological survey, and preparation of a technical report. An appropriate mitigation strategy was developed meeting Bureau of Reclamation, CEQA, and local requirements for this cultural inventory.

Oakmont Senior Living Facility, City of Novato, Marin County, California. As Principal archaeological investigator, Mr. Giacinto coordinated a Northwest Information Center (NWIC) records search, Native American Heritage Commission (NAHC) and Native American correspondence, archaeological survey, and preparation of a technical report. An appropriate mitigation strategy was developed and provided to the County of Marin for this negative cultural inventory.

Donner Trail Elementary School Project, Truckee, Placer and Nevada County, California. As archaeologist, Mr. Giacinto coordinated a Northwest Central Center (NCIC) records search, Native American Heritage Commission (NAHC) and Native American correspondence, archaeological survey, and preparation of a technical report. An appropriate mitigation strategy meeting state and local standards was developed and provided to the County of Marin for this negative cultural inventory.

San Pablo Broadband Project, City of San Pablo, California. As Principal archaeological investigator, Mr. Giacinto coordinated a Northwest Information Center (NWIC) records search, Native American Heritage Commission (NAHC) and preparation of a constraints study under CEQA regulatory context for the entire City of San Pablo area.

Tahoe Lake Elementary School Project, South Lake Tahoe, California. As archaeological investigator, Mr. Giacinto assisted with report preperation and project coordination, as well as prepared geoarchaeological assessment for ACOE or project area.

Roberts' Ranch Project, Vacaville, California. As Principal archaeological investigator, Mr. Giacinto coordinated a Northwest Information Center (NWIC) records search, Native American Heritage Commission (NAHC) and Native American information outreach, archaeological and historic architectural survey, and preparation of a technical report under CEQA regulatory context. An appropriate mitigation strategy was developed for this cultural inventory.

Collins Drive Project, City of Auburn, California. As Principal archaeological investigator, Mr. Giacinto coordinated a North Central Information Center (NCIC) records search, Native American Heritage Commission (NAHC) and Native American information outreach, archaeological survey, and preparation of a technical memo . An appropriate mitigation strategy was developed meeting CEQA and local reuirements for this cultural inventory.

Kitchell Santa Rosa Project, Granite Construction, City of Santa Rosa, California. As Principal archaeological investigator, Mr. Giacinto coordinated a Northwestern Information Center (NCIC) records search, Native American Heritage Commission (NAHC) and Native American information outreach, and preparation of a technical memo. An appropriate mitigation strategy was developed meeting CEQA and local reuirements for this cultural inventory.

Dorsey Marketplace Project, City of Grass Valley, California. As Principal archaeological investigator, Mr. Giacinto coordinated a North Central Information Center (NCIC) records search, Native American Heritage Commission (NAHC) and Native American information outreach, archaeological survey, and preparation of a technical report. An appropriate mitigation strategy was developed meeting CEQA and local reuirements for this cultural inventory, including recommendations relating to historicl mining features.

Penn Valley Project, SimonCre, County of Nevada, California. As Principal archaeological investigator, Mr. Giacinto coordinated a North Central Information Center (NCIC) records search, Native American Heritage Commission (NAHC) and Native American information outreach, archaeological survey, and preparation of a technical memo. An appropriate mitigation strategy was developed meeting Army Corps of Engineers, CEQA and local reuirements for this cultural inventory update.

Byron Airport Development Program, Contra Costa, California. As Principal archaeological investigator, Mr. Giacinto coordinated a Northwest Information Center (NWIC) records search, Native American Heritage Commission (NAHC) and Native American information outreach, archaeological survey, and preparation of a technical report. An appropriate mitigation strategy was developed for this cultural inventory.

Napa Roundabouts Project, City of Napa, California. As Principal archaeological investigator, Mr. Giacinto completed Native American coordination, preperation of an ASR and HRER, review of historical and geoarchaeological documentation, and successfully developed, implemented, and reported upon an XPI Investigation, including preperation of a XPI Proposal and technical report. Mr. Giacinto managed fieldwork, which included survey, the use of mechanical geoprobes and hand excavation with the intent of identifying the potential for both prehistoric and historical-era resouces within the NRHP-eligible West Napa Historic District. A successful mitigation strategy was developed for the City of Napa and Caltrans, within federal, state and local regulatory contexts.

El Dorado Irrigation District Emergency Tree Harvest, El Dorado, California. As Principal archaeological investigator, Mr. Giacinto coordinated a North Central Information Center (NCIC) records search, Native American Heritage Commission (NAHC) and Native American information outreach, archaeological survey, and preparation of a technical report for CalFire and EID under CEQA regulatory context. An appropriate mitigation strategy was developed for this cultural inventory, including updates to the El Dorado Canal.

Combie Road Corridor Improvement Project, Auburn, California. As Principal archaeological investigator, Mr. Giacinto coordinated a North Central Information Center (NCIC) records search, Native American Heritage Commission (NAHC) and Native American information outreach, archaeological and historic architectural survey, DPR 523 building forms, and preparation of a technical report under CEQA regulatory context. An appropriate mitigation strategy was developed for this cultural inventory.

Dodge Flats Power Project, Pyramid Lake, Nevada. As archaeologist, Mr. Giacinto coordinated a the Nevada Cultural Resource Information System (NCRIS) records search and prepared a study of prehistoric and historical-era constraints for a proposed power project.

Lassen Substation Project, Mt Shasta., California. As Principal archaeological investigator, Mr. Giacinto coordinated and conducted a review of the archaeological and built-enviornment technical study and related sections of the Proponent's Environmental Assessment on behalf of the CPUC.

Meadowrock Vinyard Project, Napa, California. As Principal archaeological investigator, Mr. Giacinto coordinated a Northwest Information Center (NWIC) records search, Native American Heritage Commission (NAHC) and Native American information outreach, archaeological and historic architectural survey, and preparation of a technical report under CEQA regulatory context. An appropriate mitigation strategy was developed for this cultural inventory

Highway 101 Overcrossing Project Offsite Staging Area Project, City of Palo Alto, California. As principal investigator, Mr. Giacinto reviewed existing Historic Property Survey Repoorts and Archaeological Survey Reports; then prepared an addendum study to meet CEQA and Caltrans regulations and styles. He coordinated a records search, NAHC and Native American consultation, archaeological survey, and preparation of the technical report.

Park Boulevard Environmental Impact Report (EIR), City of Palo Alto, California. As Principal archaeological investigator, Mr. Giacinto coordinated a Northwest Information Center (NWIC) records search, Native American Heritage Commission (NAHC) and Native American consultation, archaeological survey, and preparation of a technical report and EIR section. An appropriate mitigation strategy was developed and provided to the City of Palo Alto for this negative cultural inventory.

Vacaville Center Campus Project, Solano Community College District, City of Vacaville, California. As principal archaeological investigator, Mr. Giacinto coordinated a Northwest Information Center (NWIC) records search, NAHC and Native American communication, archaeological survey, and preparation of a technical report. Recommendations were framed in compliance with CEQA regulations and submitted to the lead agency.

Makani Power Wind Turbine Pilot Program, Google Inc., Alameda, California. As principal investigator, Mr. Giacinto coordinated a NWIC records search, NAHC and Native American consultation, archaeological survey, and preparation of a negative technical memo a for this potential wind farm. The mitigation strategy did not require additional archaeological monitoring or other work based on the lack of archaeological sites, and the low potential for encountering unrecorded subsurface cultural resources. Recommendations were submitted as a categorical exemption to the reviewing agency.

Maidu Bike Path and Park Projects, City of Auburn, California. As principal investigator, Mr. Giacinto managed the survey, archival searches, tribal correspondence, and reported mangement recommendations for a cultural resources inventory. Considerations included compliance under CEQA and Section 106 of the NHPA.

Steephollow Creek and Bear River Restoration, Nevada County, California. As Principal investigator, Mr. Giacinto assisted with management of field efforts and preperation of a technical report for a cultural inventory. Resources were evaluated for significance under CEQA, and Section 106 of the NHPA.

Yokohl Ranch Development Project, The Yokohl Ranch Company, LLC, Tulare County, California. As co-principal investigator and field director, Mr. Giacinto managed 15 archaeologists in conducting significance evaluation of 118 historical and prehistoric cultural resources throughout the 12,000 acre Yokohl Valley area. Operated as tribal interface, and facilitated the respectul handling and reburial of sensitive cultural material with the tribes, applicant, and NAHC.

Yokohl Ranch Cultural Resources, The Yokohl Ranch Company, LLC, Tulare, California. As Principal investigator and field director, Mr. Giacinto managed 15 archaeologists in conducting 1,900 acres of survey throughout the Yokohl Valley.

Hamilton Hospital Project, City of Novato, California. As principal investigator, Mr. Giacinto managed tribal and archaeological fieldwork and methodological reporting relating to the extended Phase I inventory geoprobe drilling and shovel test pit excavation. Considerations included compliance under CEQA and local regulations.

Southern California Region

Development

1836 Columbia Street Project, Parikh Properties, City of San Diego, California. As Co-Principal investigator, Mr. Giacinto coordinated a SCIC records search, NAHC, archaeological survey, and preparation of a negative technical report for this small residential development. The mitigation strategy did not require additional archaeological monitoring or other work based on the lack of archaeological sites, and the low potential for encountering unrecorded subsurface cultural resources. Recommendations were submitted to the City of San Diego.

Canergy - Rutherford Road Development Project, Ericsson-Grant, Inc., El Centro, California. As Principal investigator, Mr. Giacinto coordinated records searches, Native American contact, map preparation and fieldwork.

Oro Verde Development Project, Wohlford Land Co., LLC, Valley Center, California. As Principal investigator, Mr. Giacinto coordinated a SCIC records search, NAHC and Native American consultation, archaeological survey, and preparation of a negative technical letter report for this small residential development. The mitigation strategy did not require additional archaeological monitoring or other work based on the lack of archaeological sites, and the low potential for encountering unrecorded subsurface cultural resources. Recommendations were submitted to the County of San Diego.

Fifth Avenue Development Cultural Inventory, E2 ManageTech, Inc., Chula Vista, California. As Principal investigator, Mr. Giacinto coordinated the preparation of a paleontological, archaeological, and historic resource inventory for a proposed residential project. Responsibilities included a SCIC records search, San Diego Natural History Museum (SDNHM) records search, archival research, agency and client communication, GIS, and compiling the technical report and appendices. Results were submitted as a technical report s to the City of Chula Vista.

Normal Street Evaluations, Darco Engineering, Inc., San Diego, California. As Principal investigator, Mr. Giacinto managed the preparation of a historic resource evaluation for a number of buildings located in the community of University Heights. Responsibilities included an SCIC records search, agency and client communication, archival research, GIS, and compiling the technical report and appendices. Results were submitted as a technical report and associated appendices to the City of San Diego.

Mapleton Park Centre Site Analysis, Kaiser Foundation Health Plan, Inc., Murrieta, California. As Principal archaeological consultant, Mr. Giacinto prepared a project constraints study for Kaiser Permanente, within the County of Riverside.

New Kaiser Permanente Medical Center EIR, Kaiser Foundation Health Plan, Inc., San Diego, California. As field director, Mr. Giacinto conducted a survey of the proposed medical center and reported negative findings to the City of San Diego.

St. John Garabed Church Environmental Services, St. John Garabed Armenian Apostolic Church Trust, San Diego, California. As field director and co-principal investigator, Mr. Giacinto conducted a survey of the proposed church facilities and reported findings to the City of San Diego. Additional responsibilities included preparation of the cultural and paleontological sections for the project EIR.

PMC Quarry Creek Project Phase II Cultural Evaluation, McMillin Land Development, Carlsbad, California. As field director, Mr. Giacinto managed and conducted archaeological testing, data analysis, report writing and mapping of existing cultural resources within the 60-acre Quarry Creek Project study area.

University Office and Medical Park Project Cultural Resource Study Survey, U.S. Army Corps of Engineers, San Marcos, California. As field director, Mr. Giacinto managed a team of archaeologists in conducting survey of the 49.5-acre study area in a general inventory of potentially impacted cultural resources and prepared maps and a report for the presentation of this information.

Education

Mission Beach Elementary School EIR, McKellar McGowan, San Diego, California. As principal archaeological investigator, Mr. Giacinto coordinated a Southern California Information Center (SCIC) records search, NAHC and Native American consultation, archaeological survey, and preparation of a technical report. The mitigation strategy did not require archaeological monitoring or other work based on the lack of archaeological sites, and the low potential for encountering unrecorded subsurface cultural resources. Recommendations were submitted to the City of San Diego.

San Diego State University (SDSU) West Campus Housing EIR/Tech Studies, Gatzke, Dillon and Balance, San Diego, California. As principal archaeological investigator, Mr. Giacinto coordinated a SCIC records search, NAHC and Native American consultation, archaeological survey, and preparation of a technical report and EIR section. An appropriate mitigation strategy was developed and provided to SDSU for this negative cultural inventory.

Orange Coast College Initial Study (IS), Coast Community College District, Orange, California. As principal archaeological investigator, Mr. Giacinto coordinated records search, NAHC and Native American consultation, archaeological survey, preparation of a technical report, and provided management and compliance recommendations relating to cultural resources on three Orange County College campuses.

Energy

McCoy Solar Energy Project, Blythe, California. As Principal Investigator, Mr. Giacinto supervised, implemented, and reported upon compliance efforts under Section 106 of the NHPA, BLM Guidelines, CEQA, and County of Riverside Guidelines. General responsibilities included day-to day scheduling oversight of Native American monitors and archaeologists, tribal interface, management of cultural monitoring implementation, and agency reporting. Worked with the Dudek Compliance team to provide cultural summaries for 14 variance requests. Reporting included preperation and submittal of daily cultural resource summaries to interested tribal parties and the BLM, monthly summaries of cultural compliance status and treatment of unanticipated finds, bi-weekly BLM-McCoy Solar, meetings and a montitoring summary report. Mr. Giacinto was the lead in two formal trainings with monitors and counsel members from the Colorado River Indian Tribes regarding federal and state regulations relating to human remains, County and BLM guiding documents, identification of cultural material, and the multiple understandings of "cultural resources".

Blythe Solar Power Project, Blythe, California. As Principal Investigator, Mr. Giacinto supervised, implemented, and reported upon cultural compliace and construction monitoring efforts under Section 106 of the NHPA, BLM Guidelines, California Energy Commission Guidelines, CEQA, and County of Riverside Guidelines. General responsibilities included day-to day scheduling oversight of Native American monitors and archaeologists, tribal interface, management of cultural monitoring implementation, and agency reporting to both the BLM and Energy Commission. Reporting included preperation and submittal of daily cultural resource summaries to interested tribal parties, Energy Commission, and the BLM, monthly summaries of cultural compliance status and treatment of unanticipated finds, bi-weekly BLM-McCoy Solar, meetings and a montitoring summary report. Mr. Giacinto was the lead in multiple trainings.

BayWa Granger Solar Site Survey, RBF Consulting, Valley Center, California. As Principal Investigator, Mr. Giacinto managed the inventory and prepared management recommendations for a proposed solar farm in Valley Center, California. A relationship of open dialogue between Mr. Giacinto and the client allowed for the project design to avoid significant direct and indirect impacts to cultural resources the proper the development of compliant mitigation and informed project design. Results were submitted to the County of San Diego Department of Planning and Landuse.

Valley Center Solar Site Survey, RBF Consulting, Valley Center, California. As Principal Investigator, Mr. Giacinto managed the inventory and prepared management recommendations for a proposed solar farm in Valley Center, California. A relationship of open dialogue between Mr. Giacinto and the client allowed for the project design to avoid significant direct and indirect impacts to cultural resources the proper the development of compliant mitigation and informed project design. Results were submitted to the County of San Diego Department of Planning and Landuse.

Data Collection for the Tierra Del Sol Solar Farm Project, Tierra Del Sol Solar Farm LLC, Tierra Del Sol, California. As field director, Mr. Giacinto managed a crew of 8 archaeologists in conducting the survey, surface mapping, surface collection, and excavation of 13 prehistoric and historical period sites throughout the McCain Valley. Mr Giacinto prepared a invenetory and evaluation report for this project, completed to County of San Diego Standards.

Rugged Solar Farm Project, Rugged Solar LLC, Boulevard, California. As principal investigator and field director, Mr. Giacinto managed a crew of 12 archaeologists in conducting the survey, surface mapping, surface collection and excavation of 42 prehistoric and historical period sites throughout the McCain Valley. Mr Giacinto prepared an inventory and evaluation report and EIR section for this project, completed to County of San Diego Standards

Wind Energy Project, Confidential Client, Riverside, California. As principal cultural investigator, Mr. Giacinto prepared the cultural scope and schedule, coordinated the records search, NAHC and Native American consultation, archaeological survey, and preparation of a technical report for the County of Riverside that provided management and compliance recommendations relating to identified cultural resources. Additional responsibilities included coordination of paleontological and Native American monitor subconsultants.

Gas Line for Poway Pump Station, City of Poway, San Diego County California. As principal investigator, Mr. Giacinto conducted an inventory, coordinated survey, and provided amangement recommendations in technical report.

Sol Orchard Solar Farm, RBF Consulting, Ramona, California. As Principal Investigator, Mr. Giacinto coordinated archaeological and Native American monitoring and prepared management recommendations for a proposed solar farm in Ramona, California. All impacts to significant cultural resources in the vicinity were avoided. Results were submitted to the County of San Diego.

Solar Farm Cultural Resources Services, Confidential Client, San Diego, California. As project director, Mr. Giacinto managed a crew of 8 archaeologists in conducting the survey, surface mapping, surface collection, and excavation of 13 prehistoric and historical period sites throughout the McCain Valley.

As-Needed Environmental Analysis for Solar Project Road Access, Confidential Client, San Diego, California. As field director, Mr. Giacinto managed a crew of 12 archaeologists in conducting the survey, surface mapping, surface collection and excavation of 42 prehistoric and historical period sites throughout the McCain Valley.

East County Substation EIR/Environmental Impact Statement (EIS), California Public Utilities Commission (CPUC), San Diego County, California. As field archaeologist, Mr. Giacinto worked as part of a team to survey the possible impacts to exiting and newly recorded cultural resources.

Class III Cultural Resources Inventory for Meteorological Masts 1 and 4 and Access Roads, Iberdrola Renewables, Kern County, California. As field director, Mr. Giacinto managed a team of archaeologists in conducting surveys of the study area in a general inventory of potentially impacted cultural resources.

Wood to Steel Pole Conversion Survey, San Diego Gas and Electric (SDG&E), San Diego County, California. As crew chief, Mr. Giacinto managed a team of archaeologists in conducting a survey of Circuit 75 in a general inventory of potentially impacted cultural resources.

Sunrise Powerlink Project Monitoring, SDG&E, Imperial and San Diego Counties, California. As a field director, Mr. Giacinto assisted in managing an archaeological field crew, aided in data collection, and conducted monitoring by facilitating planned mitigation strategies of construction and pre-construction activities associated with a 500-kilovolt (kV) transmission line, access roads, and work areas.

Cal Valley Solar Ranch-Switchyard Site No. 3 Archaeological Testing, Ecology & Environment Inc., San Luis Obispo County, California. As part of a team of archaeologists, conducted excavations and general testing of a middle prehistoric site.

Wood to Steel Pole Conversion, SDG&E, Cleveland National Forest (CNF), San Diego County, California. As crew chief, Mr. Giacinto managed a team of archaeologists in conducting a survey of Circuit 440 in a general inventory of potentially impacted cultural resources.

Devers to Palo Verde 2 (DPV2) Colorado River Substation Project Monitoring, Southern California Edison (SCE), Blythe, California. As project archaeologist, Mr. Giacinto monitored the geotechnical testing of soils along access road leading into Colorado River Substation from the west.

Sunrise Powerlink Pole Fielding and Environmental Monitoring, SDG&E, Imperial and San Diego Counties, California. As the archaeological representative, Mr. Giacinto worked with SDG&E-contracted engineers, surveyors, and biologists to assess proposed work areas, access roads, and structure locations for possible impacts upon existing cultural resources.

Wood to Steel Pole Conversion Pole Fielding, SDG&E and CNF, San Diego County, California. As the archaeological representative, Mr. Giacinto worked with SDGE-contracted engineers, surveyors, and biologists to assess proposed pole transmission pole locations for possible impacts upon existing cultural resources.

Wood to Steel Pole Conversion, SDG&E and CNF, San Diego County, California. As field archaeologist, Mr. Giacinto worked as part of a team to survey segments of Circuit 449, Circuit 78, TL 625, and TL 629 for possible impacts to existing cultural resources.

Guy Pole and Stub Pole Removal Monitoring, SDG&E, Carlsbad, California. As archaeological representative, Mr. Giacinto monitored activities associated with the removal of existing unused energy transmission infrastructure in an area near recorded cultural resources of noted significance.

DPV2 500 kV Transmission Line Survey, SCE, Riverside County, California. As field archaeologist, Mr. Giacinto worked as part of a team to survey more than 45 miles of linear proposed project area. Conducted an intensive inventory of prehistoric and historical period cultural resources from Desert Center to Thousand Palms.

DPV2 Colorado Switchyard Survey, SCE, Riverside County, California. As project archaeologist, Mr. Giacinto prepared the site records gathered through a pre-field records search and created project area maps in GIS illustrating the location and type of preexisting cultural resources prior field survey for a fiber-optic ground wire project for DPV2 Colorado switchyard in Blythe.

Pole Replacement Projects Surveying, SCE, Orange and Riverside Counties, California. As project archaeologist, Mr. Giacinto prepared the site records gathered through a pre-field records search and created project area maps in GIS illustrating the location and type of preexisting cultural resources prior to fieldwork for the deteriorated pole project within the CNF, and deteriorated pole and pole replacement on private property.

Sunrise Powerlink Environmentally Superior Southern Alternative Survey, SDG&E, San Diego and Imperial Counties, California. As project archaeologist, Mr. Giacinto assisted in preparing the site records gathered through a pre-field records search and digitized the boundaries if archaeological sites in GIS illustrating the location and type of preexisting cultural resources, and a records search of existing site data for alternative route.

Military

Cultural Resources Inventory, March Joint Powers Authority, Riverside County, California. As Principal investigator, Mr. Giacinto managed the field efforts, reporting, and facilitated tribal consultation for cultural inventory. The report included prepration of a cultural context for WW-I and WW-II era history o fthe air fields and camp in the vicinity. Resource considerations were compliant with CEQA and Section 106 of the NHPA.

Utility Corridor Survey at Edwards Air Force Base, U.S. Air Force, California. As Archaeologist, Mr. Giacinto guided the design and preperatio of digital field forms to assisst in the recordation of archaeological resources at archaeological sites throughout the EAFB, including the Pancho Barnes site.

Infill Survey Project at Edwards Air Force Base, U.S. Air Force, California. As Field Director, Mr. Giacinto managed a team of five archaeologists in conducting a general pedestrian inventory of cultural resources within a 7,650-acre study area

Desert Warfare Training Facility Cultural Resources Inventory Project, U.S. Navy Southwest, Imperial County, California. As field archaeologist, Mr. Giacinto worked as part of a team to conduct an intensive inventory of prehistoric and historical period cultural resources in selected areas within the Chocolate Mountains Gunnery Range in Niland.

Morgan/Bircham 55 to 12 kV Project Survey, U.S. Navy-Naval Air Weapons Station (NAWS)-China Lake, Inyo County, California. As project archaeologist, Mr. Giacinto prepared the site records gathered through a pre-field records search and created project area maps in GIS illustrating the location and type of preexisting cultural resources prior to field survey at NAWS China Lake.

Resource Management

Pure Water Project Constraints Study and PEIR, City of San Diego, California. As Principal investigator and field director, Mr. Giacinto managed preperation of a constraints study for the Pure Water Project. Work involved a records search of over 100 mile linear miles of San Diego. Site record information from more than 1,236 cultural resources was processed, coded, and integrated within a geospatial sensitivity model to identy archaeological and built environment constraints throughout the proposed alignment. This information was integrated within a PEIR and is currently being used to assist with management planning through the project alignment. Maps were then generated using generalized grid units (1000 x 1000 meters in size) to provide a visual model of relative archaeological resource sensitivity while maintaining the appropriate level of confidentiality for public dissemination to assist in planning.

Lake Morena Dam Project, Lake Morena, City of San Diego, California. As Principal investigator, Mr. Giacinto managed a SCIC records search, NAHC and Native American correspondence, archaeological survey, agency correspondence, and preparation of a archaeological and built environment technical report work related to dam improvements.

Hanson El Monte Pond Restoration, Lakeside's River Park Conservancy, San Diego, California. As Principal investigator, Mr. Giacinto managed the field efforts, reporting, and agency interface for a cultural inventory. Resources were evaluated for significance under county guidelines, CEQA, and Section 106 of the NHPA. Worked with the Army Corps for submittal of documents to SHPO.

Peter's Canyon Regional Park CEQA Study, Orange County Fire Authority, Orange, California. As principal investigator, Mr. Giacinto conducted a cultural resources inventory of all cultural resources within Peters Canyon planned fuel reduction areas. Mr. Giacinto coordinated a SCIC records search, NAHC and Native American consultation, archaeological survey, and preparation of a technical report. Recommendations were provided to agency personnel to assist in mitigating any possible adverse effects to cultural resources in the project vicinity.

Lake Cahuilla Cultural Resources Management Plan, ASM PARC, Riverside County, California. As project archaeologist and lead analyst, Mr. Giacinto developed a standardized database associated with ancient Lake Cahuilla and the surrounding archaeological and ecological landscape. Performed GIS data integration and predictive analysis, data entry of site record information, and completed multi-day, multi-person record search covering 17 USGS quadrangle in Riverside County. The project was finalized with the prepreation of a management document submitted to the the Friends of the San Jacinto Mountains with the intent of identifying known and potential areas for preservation.

Third Party Review and Monitoring

Ocotillo Wind Energy Facility Third Party Compliance Monitoring, Bureau of Land Management (BLM), Imperial County, California. As third party observer, Mr. Giacinto collaborated with the BLM in maintaining cultural compliance with federal environmental policies. In addition, processed archaeological and Native American comments for BLM attention.

Rio Mesa Solar Electric Generating Facility CEQA Studies, BrightSource Energy, Inc., Riverside, California. As third party reviewer, Mr. Giacinto collaborated with the BLM, the California Energy Commission, and Brightsource to review URS Corporation's cultural report content, quality, and environmental compliance.

Tribal

South Palm Canyon West Fork Flood Emergency Work, Agua Caliente Band of Cahuilla Indians, Palm Springs, California. As principal investigator, Mr. Giacinto worked with the Agua Caliente Band of Cahuilla Indians Tribal Historic Preservation Office to conduct archaeological monitoring on tribal lands of emergency repairs within Andreas Canyon National Register of Historic Places listed district. A monitoring report with a summary of findings and implemented mitigation activities, daily monitoring logs and photos, and confidential figures was provided to the tribe.

South Palm Canyon Improvements, Agua Caliente Band of Cahuilla Indians, Palm Springs, California. As principal investigator, Mr. Giacinto worked with the Agua Caliente Band of Cahuilla Indians Tribal Historic Preservation Office to conduct archaeological monitoring on tribal lands of facility improvements within Andreas Canyon National Register of Historic Places listed district. A monitoring report with a summary of findings and implemented mitigation activities, daily monitoring logs and photos, and confidential figures was provided to the tribe.

Shu'luuk Wind Project Cultural Resource Study Survey, Campo Environmental Protection Agency and Invenergy LLC, Campo Indian Reservation, California. As field director, Mr. Giacinto managed two teams of archaeologists, consisting of seven total practitioners, in conducting a survey of the 2,400-acre study area in a general inventory of potentially impacted cultural resources. Worked with Campo Environmental Protection Agency, of the Campo Kumeyaay Nation, in forming management objectives and integrating six Native American Monitors into daily survey activities.

Water/Wastewater

Auburn Recycled Wastewater Treatment Plant Secondary Process Upgrade Improvement Project, City of Auburn, California. As principal investigator, Mr. Giacinto managed the survey, archival searches, tribal correspondence, and reported mangement recommendations for a cultural resources inventory. Considerations included compliance under CEQA and Section 106 of the NHPA.

Recycled Water Pipeline Project, City of Woodland, California. As principal investigator, Mr. Giacinto managed the survey, archival searches, tribal correspondence, and reported mangement recommendations for a cultural resources inventory. Considerations included compliance under CEQA and Section 106 of the NHPA.

Carlsbad Desalination Third Addendum to EIR Biological Survey and Monitoring, Poseidon Water LLC, Carlsbad, California. As archaeological consultant, Mr. Giacinto conducted archaeological monitoring and consultation on an as-needed basis.

Old Mission Dam, City of San Diego, California. As principal investigator, Mr. Giacinto conducted an inventory, coordinated survey, and prepared recommendations for the maintenance of the National Register of Historic Places listed resource, Old Mission Dam.

Otay River Wetland Mitigation, Poseidon Water LLC, San Diego, California. As field director, Mr. Giacinto conducted a cultural resources survey of a mitigation property, managed by the U.S. Fish and Wildlife Service (USFWS), to be used for estuary restoration.

Vallecitos Water District Rock Springs Sewer, Infrastructure Engineering Corporation, San Diego, California. As principal investigator, Mr. Giacinto coordinated a SCIC records search, NAHC and Native American consultation, archaeological survey, and preparation of a negative technical letter report for this small residential development. The mitigation strategy did require additional archaeological monitoring based on the potential to encounter subsurface cultural resources. Recommendations were submitted to the Vallecitos Water District.

Relevant Previous Experience

Guest Lecturer in Cultural Resources for Upper Division CEQA Course, University of San Diego, California. As Cultural Resources Lecturer, Mr. Giacinto was invited to present on Cultural Resources history and management under CEQA for an upper devision USD course in April, 2015.. A presentation was created with the intention of poviding a contextual and technical understanding of how culturl aresources are interpreded and evaluatued under CEQA. The implications relating to the Friends of Mamoth (1972) decision and other cases were outlined in detail. AB-52 considerations and timing were summarized, and implications of Tribal Cultural Resources as a class of resource discussed.

Investigation of Emergent Trends of San Diego Cultural Resource Management, San Diego County, California. As ethnographic researcher, conducted verbal, semi-structured interviews with 17 archaeologists, policy makers, and Native American monitors and curators regarding the history and current practice of Cultural Resource Management. Information was contextualized through extensive background research using legal, academic, specialized, and archival sources. Analysis employed a synthesis of cultural anthropological and archaeological theory and practice. Results were published as *M.A. thesis in Anthropology* at San Diego State University (2012).

Needs Assessment/Diagnostic for the Community of La Sierra de San Francisco, Baja California Sur, Mexico. As ethnographic researcher, worked for San Diego State University through a grant provided by the International Community Foundation to conduct a general needs assessment in a UNESCO protected community within a UNESCO defined region of World Heritage, la Sierra de San Francisco. Resolved to help with improving the infrastructure of potable water, assisting in the construction of a system of telecommunications for education, and conducting workshops aimed at the preservation of local prehistoric and historical cultural and archaeological resources (2009-2011).

Ethnographic Field School, Zimatlan, Oaxaca, Mexico. As ethnographic student/researcher for San Diego State University, lived with local family and conducted interviews with local population regarding microcredit, sustainable/traditional agriculture and husbandry. Additionally, compiled audio/visual digital stories with local youth and conducted training in research and appropriate documentation. Emphasis was placed on dietary and generational cultural changes (2008).

Research Assistant, San Diego State University Collections Management. As graduate student at SDSU, worked in Collections Management under the instruction of Dr. Lynn Gamble (2007). Responsibilities included laboratory analyses, data entry, record processing, and collections curation management.

Research Assistant, South Coastal Information Center, San Diego State University. As graduate student at SDSU, worked at SCIC under the instruction of Dr. Seth mallios (2008). Responsibilities included site record and report processing and resource mapping.

Archaeological Field School, San Diego State University. As graduate student at SDSU, attended an archaeological fieldschool at Cuyamaca Complex Type Site under the instruction of Dr. Lynn Gamble (2007).

Archaeological Researcher, Institute of Archaeomythology. As as researcher and photographer, attended lectures and assissted with symposiums in Bulgaria, Serbia and Romania (2004,2008)

Archaeological Field School, Sonoma State University. As undergraduate student at SSU, attended an archaeological fieldschool under the instruction of Dr. Adrian Praetzellis (2005).

Publications

Emergent Trends of Cultural Resource Management: Alternative Conceptions of Past, Present and Place. M.A. thesis in Anthropology, San Diego State University. 2012.

A Qualitative History of "Cultural Resource" Management. anthropologiesproject.org. May 15, 2011.

Lake Cahuilla Cultural Resources Management Plan. ASM PARC. April, 2011.

A Qualitative Investigation of "Cultural Resource" Management In San Diego. The Society for the Anthropology of North America. April 2010.

A Qualitative History of "Cultural Resource" Management. ethnographix.org. May 15, 2010.

Conway, F., R. Espinoza, and A. Giacinto. 2010 Results of Needs Assessment Conducted with Communities of La Sierra de San Francisco, 2009-2010. Submitted to the International Community Foundation.

Selected Technical Reports

Giacinto, A. and A. Pham 2015. *Phase I Archaeological Inventory Report for the El Toro Recycled Water Project, Orange County, California.* Prepared for the El Toro Water District and submitted to the City of Laguna Niguel.

Giacinto, A. 2015. *Negative Cultural Resources Inventory for the Vacaville Center Campus Project, City of Vacaville, California.* Prepared for and submitted to the Solano Community College District

Giacinto, A. 2015. *Archaeological, Built-Environment, and Paleontological Resources Inventory for the 8777 Washington Blvd. Culver City Project, Los Angeles County, California.* Submitted to the City of Culver.

Giacinto, A. 2015. *Phase I Archaeological Inventory Report for the Santa Margarita Recycled Water Project, Orange County, California.* Prepared for the Santa Margarita Water District and submitted to the City of Laguna Niguel.

Wolf S. and A. Gicinto 2015. *Cultural Resources Survey for the Otay Village IV Project, San Diego County, California.* Submitted to the County of San Diego.

Wolf S. and A. Gicinto 2015. *Cultural Resources Survey for the BayWa Granger Solar Project, San Diego County, California.* Submitted to the County of San Diego.

Wolf S. and A. Gicinto 2015. *Cultural Resources Survey for the Covert Canyon Project, San Diego County, California.* Prepared for Michael Baker International. Submitted to the NPS - Cleveland National Forrest.

Giacinto, A. 2015. *Phase I Archaeological Inventory Report for the San Juan Creek Outfall Project, Dana Point, California.* Prepared for and submitted to the South Oarnge County Water Authority.

Giacinto, A. and N. Hanten 2015. *Wastewater Treatment Plant Secondary Process Upgrade Improvement Project, City of Auburn, Placer County, California.* Prepared for and submitted to the City of Auburn.

Giacinto, A. 2014. *Data Recovery for CA-RIV-3419 (Locus-14), A Multi-Component Site located within the McCoy Solar Energy Project Right of Way.* Submitted to the Bureau of Land Management.

Giacinto, A. 2014. *Work Plan to Complete Mitigation Requirement for CA-RIV-3419, A Multi-Component Site located within the McCoy Solar Energy Project (MSEP) Right of Way.* Submitted to the Bureau of Land Management.

Giacinto, A. 2014. *Summary of Data Recovery for CA-RIV-10225, A World War II site located within the McCoy Solar Energy Project (MSEP) Right-of-Way.* Submitted to the Bureau of Land Management.

Giacinto, A. 2014. *Phase I Archaeological Inventory Report for the Mission Beach Residences Project, San Diego County, California. Prepared for McKellar-Ashbrook LLC.* Submitted to the City of San Diego Development Services Department.

Giacinto, A. 2014. *Negative Cultural Resources Inventory for the Coast Hwy 101 Pump Station Project, City of Encinitas, California.* Prepared for and submitted to the City of Encinitas.

Giacinto, A. 2014. *Phase I Archaeological Inventory Report for the Santa Barbara Place Residences Project, San Diego County, California. Prepared for McKellar-Ashbrook LLC.* Submitted to the City of San Diego Development Services Department.

Giacinto, A. 2014. *Negative Cultural Resources Phase I Survey Report for the Oro Verde Project, San Diego County, California.* Submitted to County of San Diego Department of Planning and Landuse.

Giacinto, A. 2014. *Cultural Resources Technical Report for the West Campus Student Housing Complex Project, San Diego County, California.* Submitted to County of San Diego Department of Planning and Landuse.

Hale, M. and A. Giacinto 2014. *Negative Cultural Resources Phase I Inventory for the Canergy Project, Brawley, Imperial County, California.* Prepared for Ericsson-Grant Inc. Submitted to Imperial County Planning and Development.

Castells, J. and A. Giacinto 2014. Historic Resources Inventory for the Normal Street Project, City of San Diego, California. Submitted to City of San Diego..

Giacinto, A. 2013. *Phase I Cultural Resources Assessment Report for the Smoke Tree Wind Project, Riverside County, California.* Prepared for Ogin, Inc. Submitted to County of Riverside Planning Department.

Castells, J. and A. Giacinto 2013. *Archaeological, Historical, and Paleontological Resources Inventory for the 5th Avenue Chula Vista Development Project, City of Chula Vista, California.* Prepared for E2 ManageTech, Inc. Submitted to City of Chula Vista.

Giacinto, A. 2013. *Archaeological Monitoring Summary Memo for the South Palm Canyon Improvements Project, Agua Caliente Band of Mission Indians Reservation, California.*

Giacinto, A. 2013. Cultural Resources *Phase I Survey Report for the NorthLight Power Valley Center Solar Power Project, San Diego County, California.* Prepared for RBF Environmental. Submitted to County of San Diego Department of Planning and Landuse.

Giacinto, A. and M. Hale 2013. *Phase I Cultural Resources Assessment Report for the WCSS0011R1 and WCS00012R1 Project, Riverside County, California.* Prepared for FloDesign Wind Turbine Corp. Submitted to County of Riverside Planning Department.

Giacinto, A., and M. Hale. 2013. *Cultural Resources and Paleontological Survey Report for the St. John Garabed Church Project, San Diego County, California.* Submitted to the City of San Diego, California.

Giacinto, A. 2013. *Cultural Resources Phase I Addendum Report for the Old Mission Dam Maintenance Project, San Diego County, California*. Prepared for the City of San Diego.

Giacinto, A. 2013. *Archaeological Reconnaissance for Categorical CEQA Exemption for the Makani/Google Airborne Wind Turbine Pilot Project, Alameda County, California.*

Giacinto, A. 2013. *Negative Findings Letter Report for a Phase I Cultural Resources Study Conducted for the VWD Rock Springs Project, San Diego County, CA*. Submitted on behalf of IEC Corporation to the Vallecitos Water District.

Hale, M., A. Giacinto, and N. Hanten, edt. 2013. *Cultural Resources Inventory and Evaluation for the Yokohl Ranch Project, Tulare County, California*. Contributions by S. Hector, A. Garcia-Herbst, L.. Akyüz, M. Becker, S. Ní Ghabhláin, and S. Stringer-Bowsher

Hale, M., and A. Giacinto 2013. *Yokohl Ranch Project EIR, Chapter 4.6, Yokohl Valley, Tulare County, California*

Giacinto, A., and M. Hale 2012. *Cultural Resources Survey Report for the St. John Garabed Church Project, San Diego County, California*

A. Giacinto and M. Hale, 2012. *Cultural Resources Inventory for the U.S. Fish and Wildlife Service Otay River Estuary Restoration Project, Otay Mesa, San Diego County, California*

Giacinto, A. 2012. Negative *Cultural Resources Survey Report for the Kaiser Permanente San Diego Central Medical Center, San Diego County, California*

Hale, M., and A. Giacinto 2012. *Cultural Resources Inventory for the Orange County Fire Authority Project, Peters Canyon, Orange County, California*

Hale, M., and A. Giacinto 2012. *North Embarcadero Port Master Plan Amendment (NE-PMPA) EIR, Chapter 4.9, Port of San Diego, San Diego, California.*

Hale, M., and A. Giacinto 2012. *Rio Mesa Solar EIS, Chapter 4.6, Brightsource, Riverside County, California.*

Giacinto, A., J. Daniels,, I. Scharlotta, ,M.J. Hale 2012. *Archaeological Evaluation for the Rugged Solar Project*. San Diego County, California.

Giacinto, A., J.T. Daniels, M.J. Hale, 2012. *Archaeological Evaluation for the Tierra Del Sol Project*. San Diego County, California.

Hale, M., S. Andrews, M. Dalope, A. Giacinto, and N. Hanten 2012. *Phase I Cultural Resources Inventory of 7,650 acres in Management Areas 1B, 3D, and 3E Edwards Air Force Base, Kern County, California*. Prepared for Richard Bark, JT3 LLC, Subcontract Number 1A10000101.

Hale, M., A. Giacinto, and J. Schaefer 2012. *Class III Cultural Resources Inventory for the Campo Invenergy Project, Campo Indian Reservation, San Diego California.*

Giacinto, A., and M. Becker 2012. *Padre Dam Eastern Service Area Secondary Connection-Alternative Site Location*. Letter Report. San Diego County, California.

Giacinto, A., and J. Cook 2011. *Cultural Resource Study for the UOMP Project.* Letter Report.San Diego County, California.

Ghabhláin, S., A. Giacinto, and T. Quach 2011. *Cultural Resources Evaluation for the Quarry Creek Project.* City of Carlsbad,California.

DeCarlo, M.M., A. Giacinto, and W.T. Eckhardt 2010. Cultural Resources Inventory for the *Proposed Colorado River Substation Expansion Project.* Riverside County, California.

Cook, J.R., A. Garcia-Herbst, A. Giacinto, and M. Dalope 2010. *Addendum to HDR|e²M Final Report: Prehistoric Artifact Scatters, Bedrock Milling Stations and Tin Can Dumps: Results of a Cultural Resources Study for the SDG&E East County Substation Project.* San Diego County, California.

Presentations

Shifting Concepts of "Cultural Reousource" in CRM. Presented by Adam Giacinto during Renewable Energy Symposium for Society for California Archaeology Conference. Ontario, CA. 2016.

Shifting Concepts of Non-Significant Cultural Resources. Presented by Giacinto, Comeau, and Hale for Zzyzx Conference. Zzyzx, CA. 2015.

Managing California's Cultural Resources on Public Lands: A Third Party Consultant Perspective. Presented Hale and Giacinto for Society for California Archaeology, San Diego, 2015.

Invited Guest Lecture on Cultural Resources in CEQA. University of San Diego, CA. 2015.

A GIS Analysis of Ancient Lake Cahuilla Archaeological Sites, Riverside County, CA, United States. For Society for California Archaeology, San Diego, 2012.

Emergent Trends of San Diego Cultural Resource Management. For Society for California Archaeology, San Diego, 2012.

A GIS Analysis of Ancient Lake Cahuilla Archaeological Sites, Riverside County, CA, United States. For Balancias y Perspectivas, National Institute of Archaeology and History (NIAH), Mexicali, MX, 2011.